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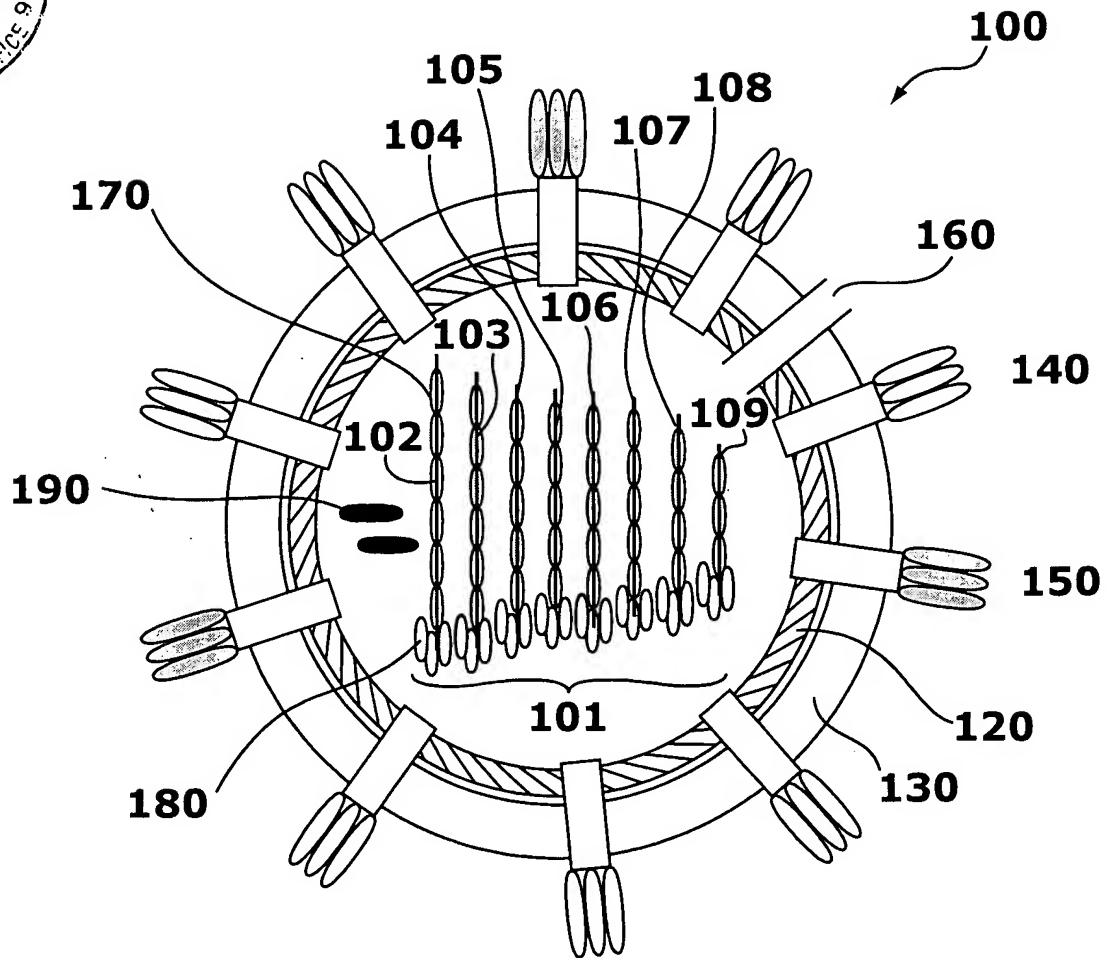


FIG. 1A

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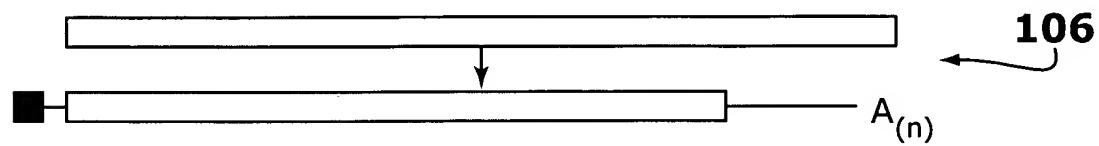
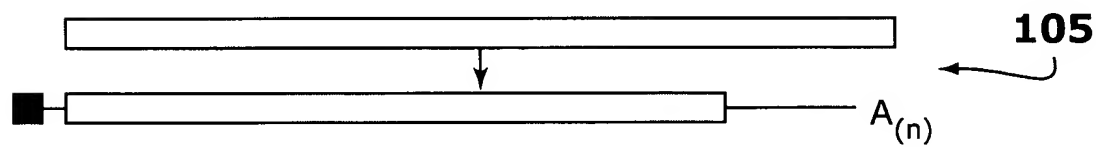
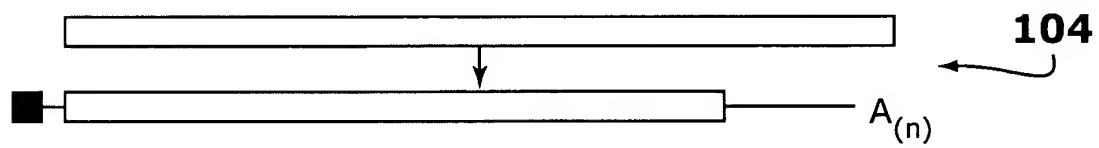
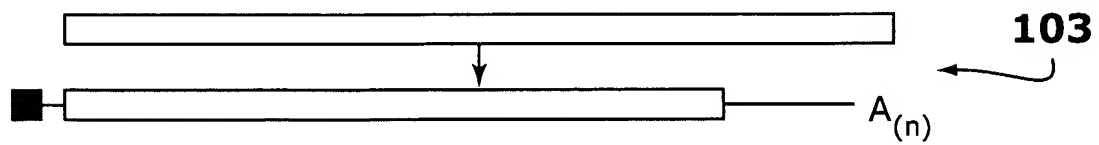
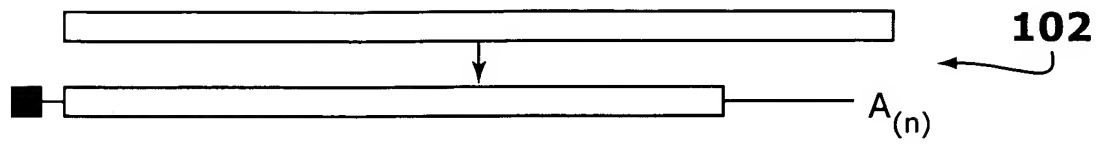


FIG. 1B-1

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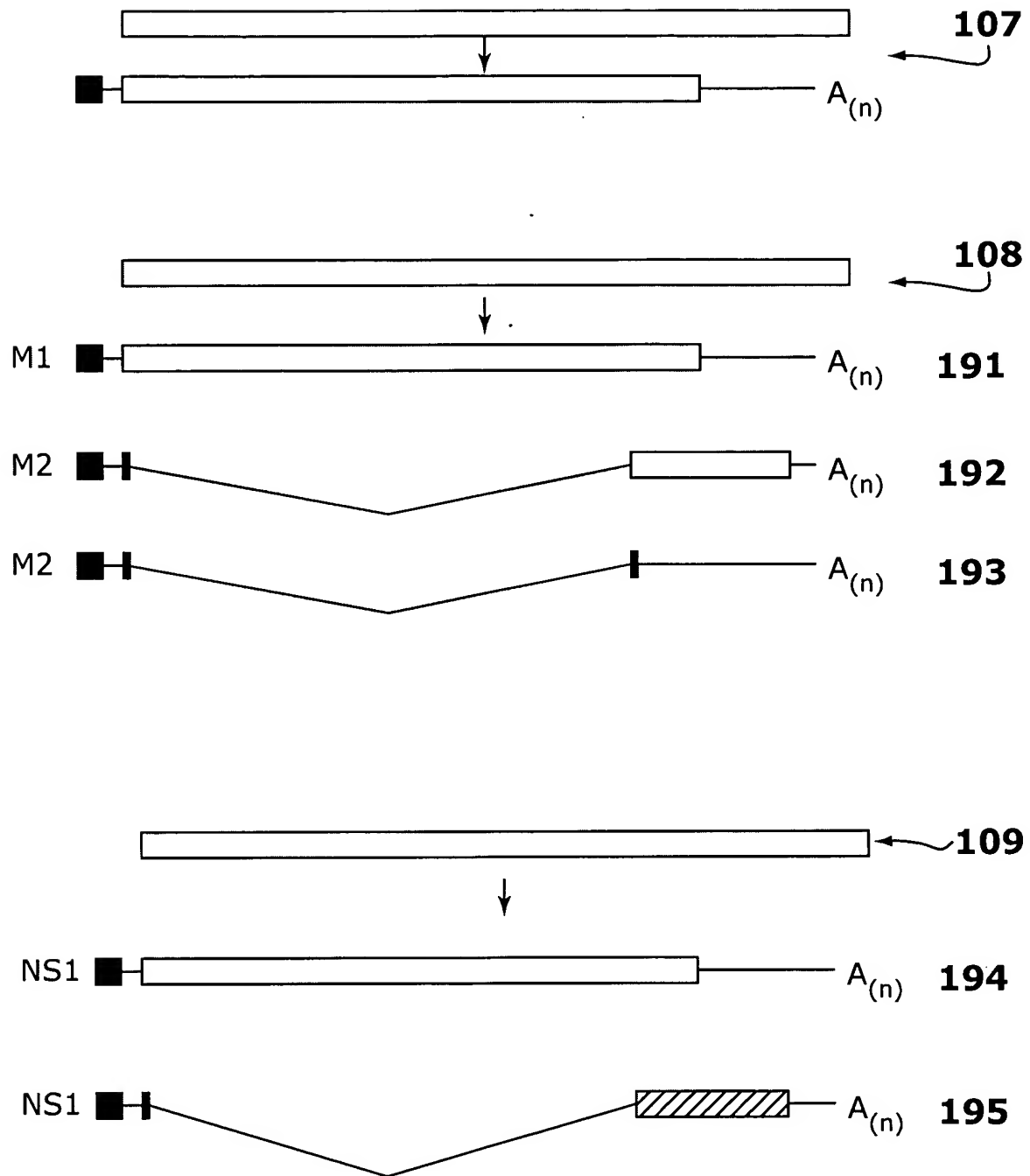


FIG. 1B-2

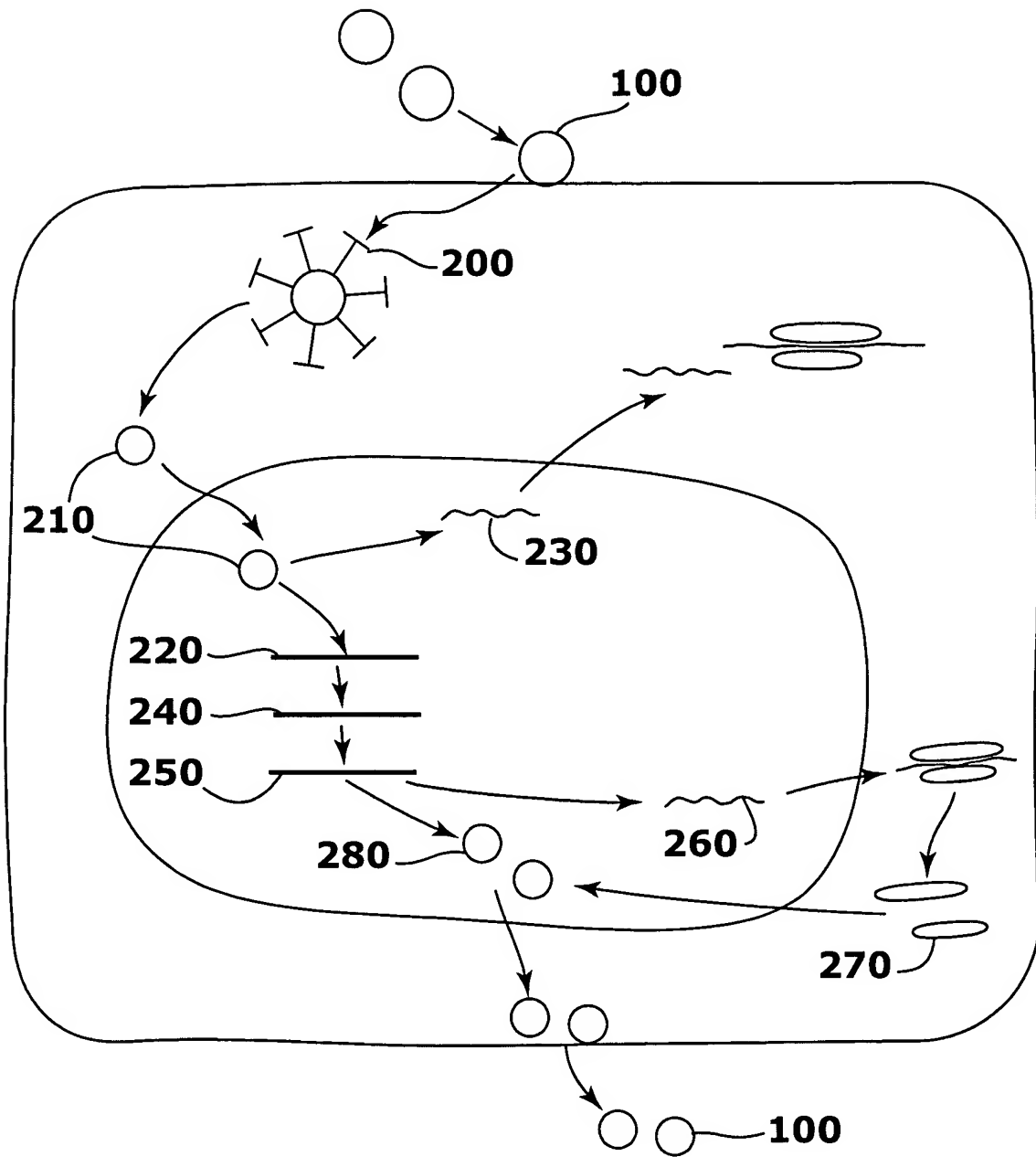


FIG. 2

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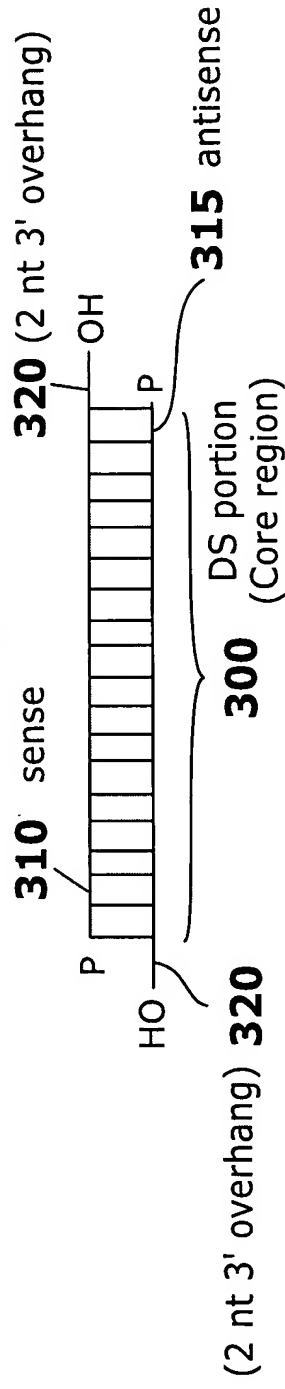


FIG. 3

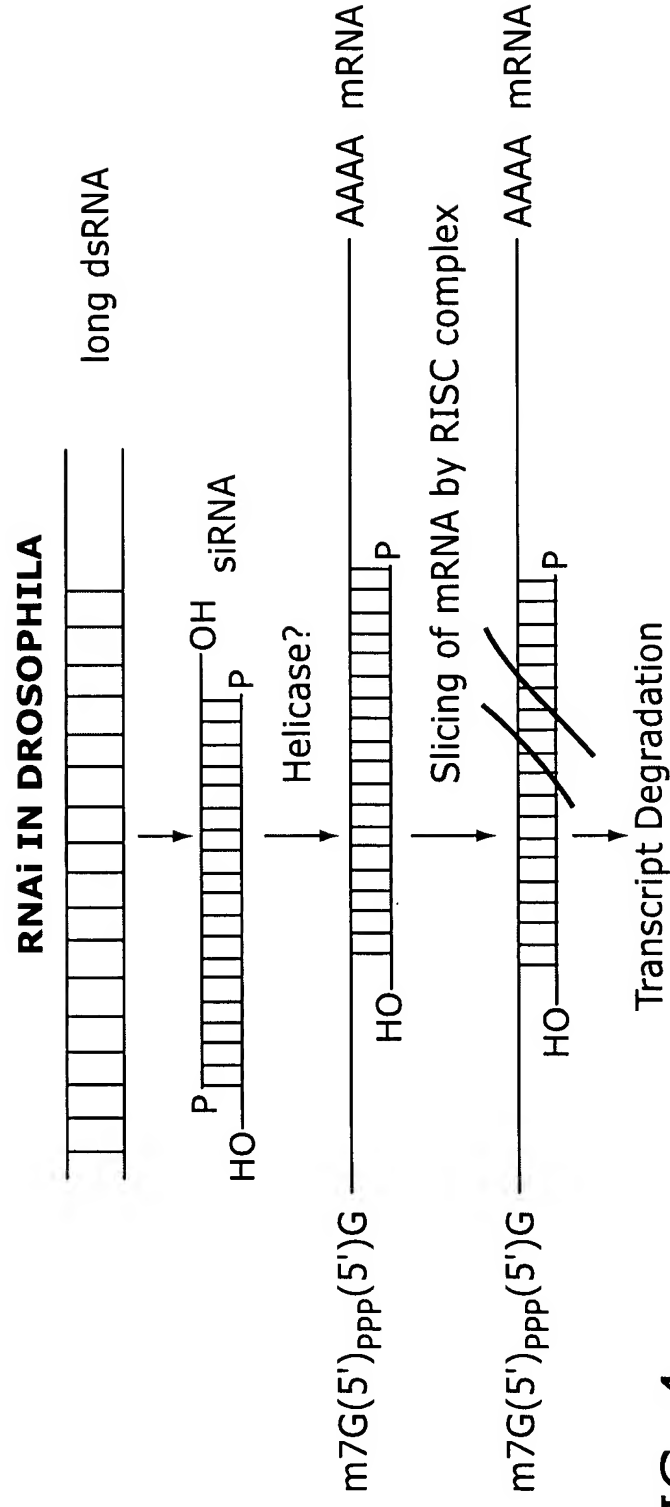


FIG. 4

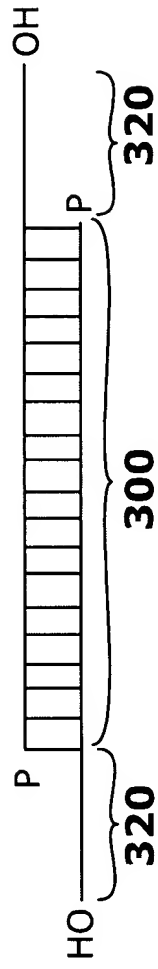


FIG. 5A

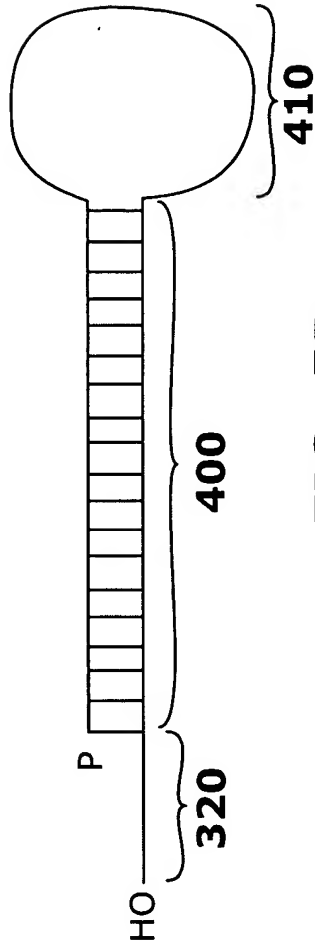


FIG. 5B

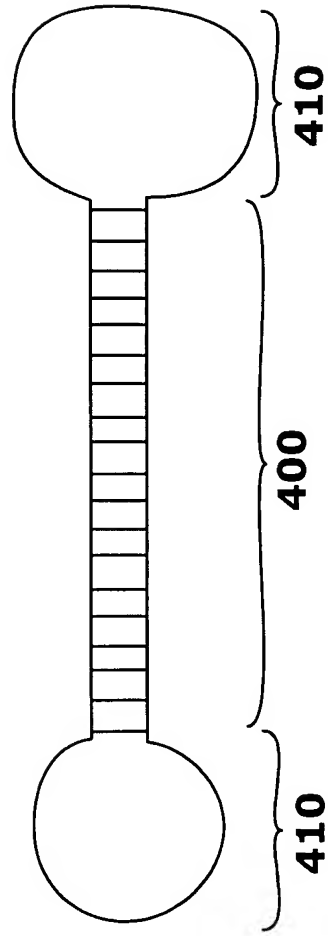
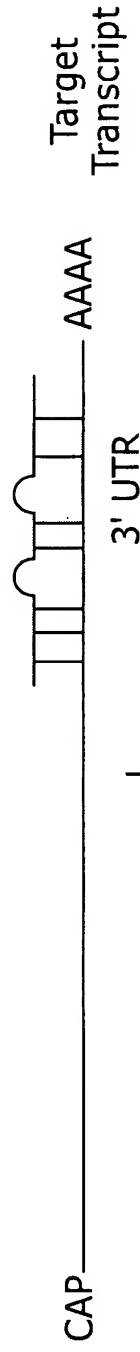
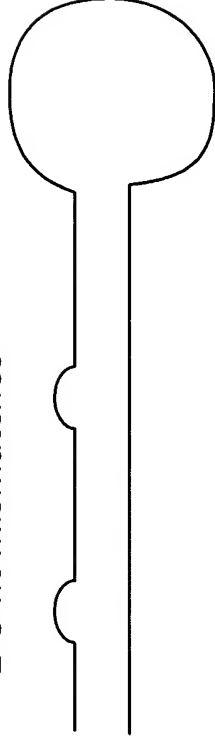


FIG. 5C

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2-3 nt mismatches



Translation

FIG. 6

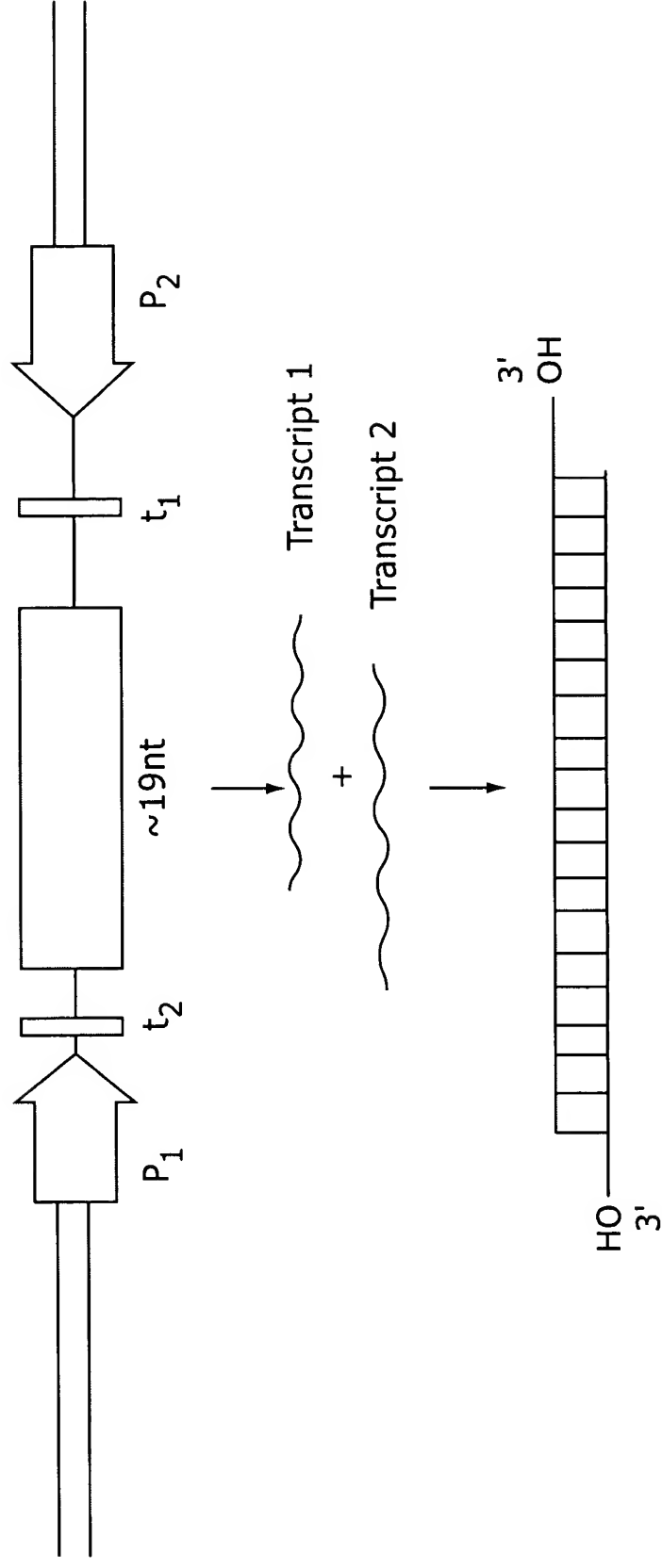


FIG. 7

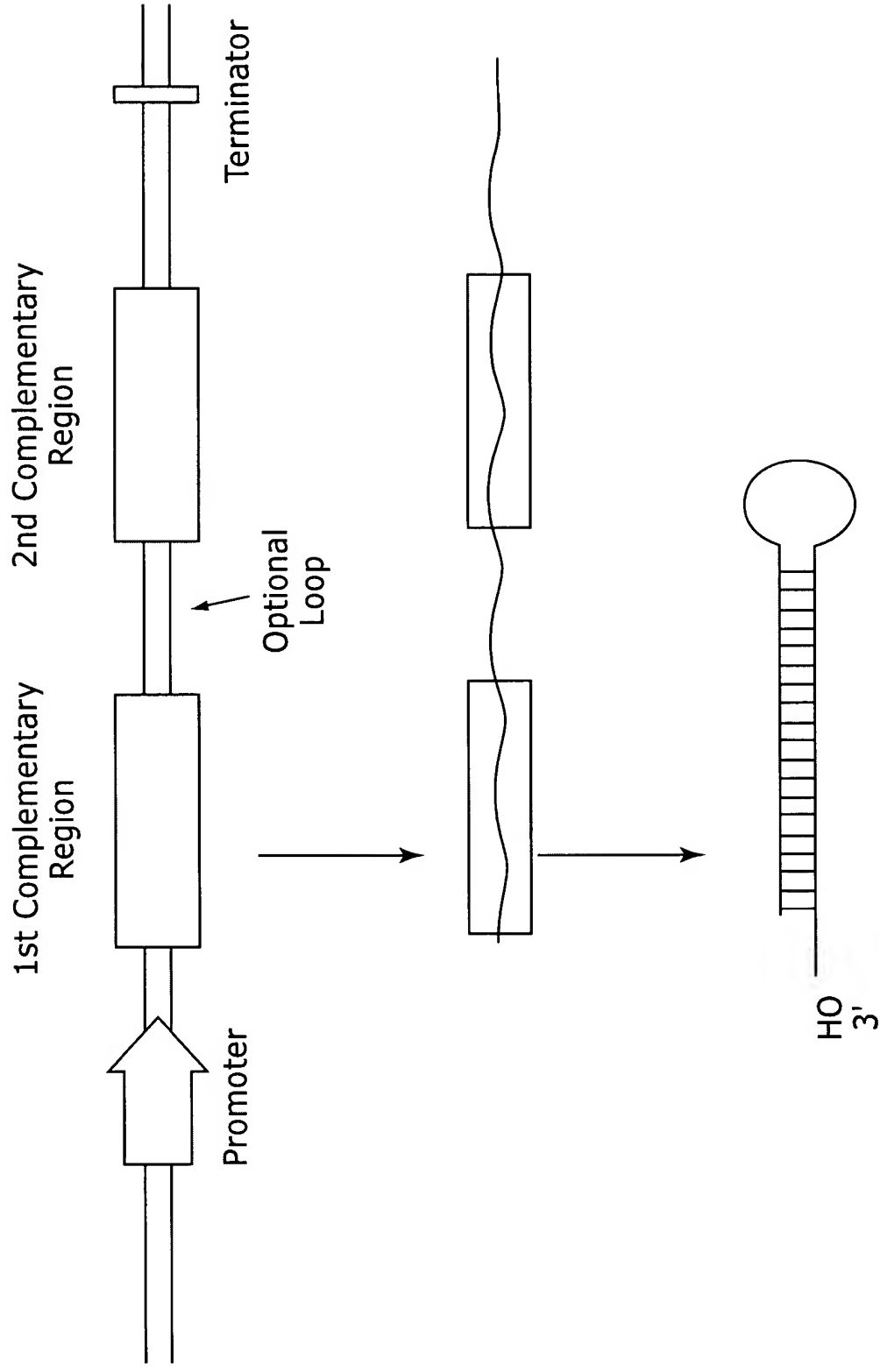


FIG. 8

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CLUSTAL W(1.4) multiple sequence alignment

Shaded area: Highly conserved regions selected as siRNA sequences.

<u>Genbank Acc. No.</u>	<u>Strain</u>			
<u>Length</u>				
NC_002022	A/Puerto Rico/8/34	H1N1	1934	2233 nt
X17336	A/WSN/33	H1N1	1933	2233 nt
M81579	A/Leningrad/134/17/57	H2N2	1957	2233 nt
AF348174	A/Hong Kong/1/68	H3N2	1968	2209 nt
AF257193	A/Hong Kong/481/97	H5N1	1997	2233 nt
AF257191	A/Hong Kong/1073/99	H9N2	1999	2233 nt
NC_002022/-	AGCGAAAGCAGGTA	CTGATCCAAAATGGAAGATTTTGTGCGAC	AATGCTT	
X17336/-	AGCGAAAGCAGGTA	CTGATTCAAAAATGGAAGATTTTGTGCGACAATGCTT		
M81579/-	AGCAAAAGCAGGTA	CTGATCCGAAATGGAAGAAATTTGTGCGACAATGCTT		
AF348174/-	-----	ATGGAAGATTTTGTACGACAATGCTT		
AF257193/-	AGCAAAAGCAGGTA	CTGATCCAAAATGGAAGACTTTTGTGCGACAATGCTT		
AF257191/-	AGCAAAAGCAGGTA	CTCCGAAATGGAAGACTTTTGTGCGACAATGCTT		
NC_002022/-	CAATCCGATGATTG	TCGAGCTTGCGGAAAAACAATGAAAGAGTATGGGG		
X17336/-	CAATCCGATGATTG	TCGAGCTTGCGGAAAAAGGCAATGAAAGAGTATGGAG		
M81579/-	CAATCCGATGATTG	TCGAGCTTGCTGAAAAAGCAATGAAAGAGTATGGAG		
AF348174/-	TAATCCGATGATTG	TCGAACCTTGCGGAAAAAGGCAATGAAAGAGTATGGAG		
AF257193/-	CAATCCAATGATTG	TCGAGCTTGCGGAAAAAGACAATGAAGGAGTATGGGG		
AF257191/-	CAATCCAATGATTG	TCGAGCTTGCGGAAAAAGACAATGAAGGAATATGGGG		
NC_002022/-	AGGACCTGAAATCGAAACAAACAAATTTGCAGCAATATGCACTCACTTG			
X17336/-	AGGACCTGAAATCGAAACAAACAAATTTGCAGCAATATGCACTCACTTG			
M81579/-	AGGATCGGAAATCGAAACAAACAAATTTGCAGCAATATGCACTCACTTG			
AF348174/-	AGGATCTTAAATCGAAACAAACAAATTTGCAGCAATATGCACTCACTTG			
AF257193/-	AAGATCCGAAGATTG	AAACAAACAAAGTT CGCTG CAATATGCAC ACACTTA		
AF257191/-	AAGACCCGAAATT	GAACAAATAAGTT CGCTG CAATATGCAC ACACTTA		
NC_002022/-	GAAGTATGCTTCATGTATT	CAGATTTCCACTTCATCAATGAGCAAGGCCGA		
X17336/-	GAAGTGTGCTTCATGTATT	CAGATTTTCACTTCATCGATGAGCAAGGCCGA		
M81579/-	GAAGTATGCTTCATGTATT	CAGATTTTCATTTTCATCAATGAGCAAGGCCGA		
AF348174/-	GAAGTATGCTTCATGTATT	CAGATTTTCATTTTCATCAATGAGCAAGGCCGA		
AF257193/-	GAAGTCTGCTTCATGTATT	CAGACTTCCATTTTCAT TGACGAACG AGGCCGA		
AF257191/-	GAAGTCTGCTTCATGTATT	CAGACTTCCATTTTCAT TGACGAACG AGGCCGA		
NC_002022/-	GTCAATAATCGTAGAACTTGGTGATCCTAATGCACTTTTGAAGCACAGAT			
X17336/-	GTCAATAGTCGTAGAACTTGGCGATCCAAATGCACTTTTGAAGCACAGAT			
M81579/-	GTCAATAATAGTAGAGCTTGATGATCCAAATGCACTTTTGAAGCACAGAT			
AF348174/-	GTCAATAGTGGTAGAACTTGATGATCCAAATGCACTTTTGAAGCACAGAT			

FIG. 9A

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AF257193/-
AF257191/-

ATCAATAATTGT**GGAATCT**GGTGATCC**G**AATGCATT**GTTGAAACACCGGT**
ATCAATAATTGT**GGAATCT**GGTGATCC**A**AATGCATT**GTTG**AAGCACAG**GT**

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

TTGAAATAATCGAGGGAAGAGATCGCACAATGGCCTGGACAGTAGTAAAC
TTGAAATAATCGAGGGAAGAGATCGCACAAT**AG**CCTGGACAGTA**ATA**AAAC
TTGAAATAAT**AG**AGGGAAGAGATCGCACAATGGCCTGGACAGTAGTAAAC
TTGAAATAAT**AG**AGGGAAGAG**ACCG**CACAATGGCCTGGACAGTAGTAAAC
TTGAAATAAT**TGA**AGGAAGAG**ACCGAG**CAATGGCCTGGACAGT**GTTGAAT**
TTGAAATAAT**TGA**AGGAAGAG**ACCGAG**CAATGGCCTGGACAGT**GTTGAAT**

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

AGTATTTGCAACACTACAGGGGCTGAGAAACCAAAGTTTCTACCAGATTT
AGTATTTGCAACACTACAGGGGCTGAGAAACCAAAGTTTCTACCAGATTT
AGTATTTGCAACACTACAGGAGCTGAGAAACCGAAGTTTCT**GCC**AGATTT
AGTATTTGCAACAC**CAC**AGGAGCTGAGAAACCGAAGTTTCT**GCC**AGATTT
AG**CATCT**GCAACAC**CAC**AGGAG**TCG**ATAAACCCAAATTTCT**TCCGGATCT**
AG**CATCT**GCAACAC**A**ACAGGAG**TCG**ATAAACCCAAATTTCT**TCCGGATCT**

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

GTATGATTACAAGGAAAATAGATTATCGAAATTGGAGTAACAAGGAGAG
GTATGATTACAAGAAGAATAGATTATCGAAATTGGAGTAACAAGGAGAG
GTATGATTACAAGGAGAATAGATTATCGA**G**ATTGGAGT**GACA**AGGAG**GG**
GTATGATTACAAGGAGAATAGATTATCGA**G**ATTGGAGT**GACA**AGGAGAG
ATACGACTACAAGGAAA**ACC**GATTCA**CT**GAAATTGGTGT**GACACGGAGGG**
ATACGACTACAAGGAAA**ACC**GATTCA**CT**GAAATTGGTGT**GACACGGAGGG**

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

AAGTTCACATATACTATCTGGAAAAGGCCAATAAAATTAATCTGAGAAA
AAGTTCACATATACTATCTGGAAAAGGCCAATAAAATTAATCTGAGA**AG**
AAGT**CC**CACATATACTATCT**T**GAAAAGGCCAATAAAATTAATCTGAGA**AG**
AAGT**CC**CACATATACTA**CTT**GAAAAGGCCAATAAAATTAATCTGAGA**AT**
AAGTTCATATAT**TTACTT**AGAGAA**AGCTAACA**AGAT**AAAATCCG**AGAAA
AAGTTCACATAT**TTACTT**AGAAAA**AGCTAACA**AGAT**AAAATCCG**AGAAA

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

ACACACATCCACATTTTCTCGTTCACTGGGGAAGAAATGGCCACAAAGGC
ACACACATCCACATTTTCT**CATT**CACTGGG**GAG**GAAATGGCCACAAAGGC
ACACACATCCACATTTTCT**CATT**CACTGGGGAAGAAATGGCCACAAAGGC
ACACACATCCACATTTTCT**CATT**CACTGGGGAAGAAATGGCCACAAAGGC
ACACATATCCACAT**CTTCT****CATT**CACTGG**AGA**AGAAATGGCC**ACTAAAGC**
ACACATATCCACAT**CTTTCT****CATT**CACTGG**AGA**AGAAATGGCC**ACTAAAGC**

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

CGACTACACTCTCGATGAAGAAAGCAGGGCTAGGATCAAAACCAGGCTAT
CGACTACACTCTCGATGAAGAAAGCAGGGCTAGGATCAAAACCAGGCTAT
CGACTACACTCTCGATGAG**G**AAAGCAGGGCTAGGATCA**AG**ACCAG**ACT**AT
CGACTACACTCTCGATGAG**G**AAAGCAGGGCTAGGATCAAAACCAG**ACT**AT
TGACTACAC**CTT**GATGAAGAGAGCAGGG**CA**GAATCAAAACCAG**ACT**AT
TGACTACAC**CTT**GATGAAGAGAGCAGGG**CA**GAAT**AAAA**ACCAG**ACT**AT

FIG. 9B

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NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

TCACCATAAGACAAGAAATGGCCAGCAGAGGCCTCTGGGATTCCTTTCTG
TCACCATAAGACAAGAAATGGCTAGCAGAGGCCTCTGGGATTCCTTTCTG
TCACCATAAGACAAGAAATGGCTAGCAGAGGCCTCTGGGATTCCTTTCTG
TCACCATAAGACAAGAGATGGCCAACAGAGGCCTCTGGGATTCCTTTCTG
TCACCATAAGACAAGAAATGGCAAGCAGGGGTCTATGGGACTCCTTTCTG
TCACCATAAGACAAGAAATGGCAAGCAGGGGTCTATGGGATTCCTTTCTG

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

CAGTCCGAGAGAGGAGAAGAGACAATTGAAGAAAGTTTGAAATCACAGG
CAGTCCGAGAGAGGCGAAGAGACAATTGAAGAAAGATTTGAAATCACAGG
CAGTCCGAAAGAGGCGAAGAAACAATTGAAGAAAGATTTGAAATCACAGG
CAGTCCGAAAGAGGCGAAGAAACAATTGAAGAAAGATTTGAAATCACAGG
CAGTCCGAGAGAGGCGAAGAGACAATTGAAGAAAGATTTGAAATCACAGG
CAGTCCGAGAGAGGCGAAGAGACAATTGAAGAAAGATTTGAAATCACAGG

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

AACAATGCGCAAGCTTGCCGACCAAAGTCTCCCGCCGAACCTCTCCAGCC
AACAATGCGCAAGCTTGCCGACCAAAGTCTCCCGCCGAACCTCTCCAGCC
GACAATGCGCAGGCTCGCCGACCAAAGTCTCCCGCCGAACCTCTCCTGCC
GACAATGCGCAGGCTTGCCGACCAAAGTCTCCCGCCGAACCTCTCCTGCC
GACCATGCGTAGGCTTGCCGACCAAAGTCTCCACCTAACTTCTCCAGCC
GACCATGCGTAGGCTTGCCGACCAAAGTCTCCACCTAACTTCTCCAGCC

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

TTGAAATTTTAGAGCCTATGTGGATGGATTGAACCGAAGGGCTACATT
TTGAAATTTTAGAGCCTATGTGGATGGATTGAACCGAAGGGCTACATT
TTGAGAATTTTAGAGCCTATGTGGATGGATTGAACCGAAGGGCTACATT
TTGAGAATTTTAGAGCCTATGTGGATGGATTGAACCGAAGGGCTACATT
TTGAAAACCTTAGAGCCTATGTGGATGGATTGAACCGAAGGGCTGATT
TTGAAAACCTTAGAGCCTATGTGGATGGATTGAACCGAAGGGCTGATT

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

GAGGGCAAGCTGTCTCAAATGTCAAAGAAGTAAATGCTAGAATTGAACC
GAGGGCAAGCTTTCTCAAATGTCAAAGAAGTAAATGCTAGAATTGAACC
GAGGGCAAGCTTTCTCAAATGTCAAAGAAGTAAATGCTAAAATTGAGCC
GAGGGCAAGCTTTCTCAAATGTCAAAGAAGTGAATGCAAAAATTGAACC
GAGGGCAAGCTTTCTCAAATGTCAAAGAAGTGAACGCCAGAATTGAGCC
GAGGGCAAGCTTTCTCAAATGTCAAAGAAGTGAACGCCAGAATTGAGCC

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

TTTTTTGAAAACAACACCACGACCACTTAGACTTCCGAATGGGCCTCCCT
TTTTTTGAAATCAACACCACGACCACTTAGACTTCCGGATGGGCCTCCCT
TTTTCTGAAAACAACACCAAGACCAATTAACCTCCGGATGGGCCTCCTT
TTTTCTGAAAACAACACCAAGACCAATTAGACTTCCGGATGGGCCTCCTT
ATTTCTGAAGACAACACCACGTCCTCTCAGATTGCCTGATGGACCTCCCT
ATTTCTGAAGACAACACCACGTCCTCCTCAGATTGCCTGATGGACCTCCCT

FIG. 9C

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NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	GTTCTCAGCGGTCCAAATTCCTGCTGATGGATGCCTTAAAATTAAGCATT GTTCTCAGCGGTCCAAATTCCTGCTGATGGATGCCTTAAAATTAAGCATT GCTCTCAGCGGTCCAAATTCCTGCTGATGGATGCTTTAAAATTAAGCATT GTTTTCAGCGGTCCAAATTCCTTCTGATGGATGCTTTAAAGTTAAGCATT GCTCCAGCGGTGCAAATTCCTTCTGATGGATGCTCTGAAATTAAGCATT GCTCCAGCGGTGCAAATTCCTTCTGATGGATGCTCTGAAATTAAGCATT
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	GAGGACCCAAGTCATGAAGGAGAGGGAATACCGCTATATGATGCAATCAA GAGGACCCAAGTCATGAGGGAGAGGGGATACCGCTATATGATGCAATCAA GAGGACCCAAGTCACGAAGGAGAGGGAATACCACTATATGATGCCATCAA GAGGATCCAAGTCACGAGGGGGAGGGAATACCACTATATGATGCCATCAA GAGGACCCGAGCCATGAGGGGGAGGGGATACCGCTATATGATGCCATCAA GAGGACCCGAGCCATGAGGGGGAGGGGATACCGCTATATGATGCCATCAA
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	ATGCATGAGAACATTCTTTGGATGGAAGGAACCCAATGTTGTTAAACCAC ATGCATGAGAACATTCTTTGGATGGAAGGAACCCAATGTTGTTAAACCAC GTGTATGAGAACATTCTTTGGATGGAAGAACCCTATGTTGTTAAACCAC ATGCATGAGAACATTTTTTGGATGGAAGAACCCTATATTGTTAAACCAC ATGCATGAAAACATTCTTTGGCTGGAGAGAGCCCAACATCATCAAACCCAC ATGCATGAAAACATTCTTCGGCTGGAGAGAGCCCAACATCATCAAGCCAC
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	ACGAAAAGGGAATAAATCCAAATTATCTTCTGTCATGGAAGCAAGTACTG ACGAAAAGGGAATAAATCCAAATTATCTTCTGTCATGGAAGCAAGTACTG ACGATAAGGGAATAAATCCAAATTATCTGCTGTCATGGAAGCAATTACTG ACGAAAAGGGGATAAATCCAAATTATCTGCTGTCATGGAAGCAAGTACTG ACGAAAAAGGCATAAATCCAAATTATCTCCTGGCTTGGAGCAGGTGCTG ACGAGAAGGGCATAAATCCCAATTATCTTCTGGCTTGGAGCAGGTGCTG
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	GCAGAACTGCAGGACATTGAGAATGAGGAGAAAATTCCAAAGACTAAAAA GCAGAACTGCAGGACATTGAGAATGAGGAGAAAATTCCAAAGACTAAAAA GCAGAACTGCAGGACATTGAGAATGAGGAGAAAGATTCCAAGAACCAAAAA GCAGAACTGCAGGACATTGAAAATGAGGAGAAAATTCCAAAGACTAAAAA GCAGAACTCCAGGATATTGAAAATGAGGATAAAAATCCCAAAAACAAGAA GCAGAACTCCAGGATATTGAAAATGAGGATAAAAATCCCAAAAACAAGAA
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	TATGAAAAAACAAGTCAGCTAAAGTGGGCACCTTGGTGAGAACATGGCAC TATGAAGAAAACGAGTCAGTTAAAGTGGGCACCTTGGTGAGAACATGGCAC CATGAAGAAAACGAGTCAGCTAAAGTGGGCACCTTGGTGAGAACATGGCAC CATGAAGAAAACGAGTCAGCTAAAGTGGGCACCTTGGTGAGAACATGGCAC CATGAAGAAAACAAGCCAATTAATGTGGGCACTCGGAGAGAATATGGCAC CATGAAGAAAACAAGCCAATTAATGTGGGCACTCGGGGAGAATATGGCAC
NC_002022/- X17336/-	CAGAAAAGGTAGACTTTGACGACTGTAAAGATGTAGGTGATTTGAAGCAA CAGAAAAGGTAGACTTTGACGATTGTAAAGATGTAGGCCGATTTGAAGCAA

FIG. 9D

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M81579/- AF348174/- AF257193/- AF257191/-	CAGAGAAAGGTAGACTTTGACGACTGTAGAGATATAAGCGATTTGAAGCAA CAGAGAAAGGTAGACTTTGACAAGTGTAGAGACGTAAGCGATTTGAAGCAA CGGAAAAAGTGGACTTTGAGGATTGCAAAGACATTGATGATCTGAAACAG CGGAAAAATTGGACTTTGAGGACTGCAAAGATATTGGCGATCTGAAACAG
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	TATGATAGTGATGAACCAGAATTGAGGTCGCTTGCAAGTTGGATTCAGAA TATGATAGTGATGAACCAGAATTGAGGTCGCTTGCAAGTTGGATTCAGAA TATGATAGTGATGAACCTGAATTAAGGTCACCTTCAAGCTGGATCCAGAA TATGATAGTGACGAACCTGAATTAAGGTCACCTTCAAGCTGGATCCAGAA TACCACAGTGATGAGCCAGAGCTTAGATCGCTAGCAAGCTGGATCCAGAA TATCAAAGTGATGAGCCAGAGCTCAGATCGATAGCAAGCTGGATCCAGAG
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	TGAGTTCAACAAGGCATGCGAACTGACAGATTCAAGCTGGATAGAGCTTG TGAGTTCAACAAGGCATGTGAAGTACCGATTCAAGCTGGATAGAGCTCG TGAGTTCAACAAGGCATGCGAGCTGACCGATTCAATCTGGATAGAGCTCG TGAGTTCAACAAGGCATGCGAGCTGACCGATTCACTTGGATAGAGCTCG TGAGTTCAACAAGGCATGTGAATTGACCGATTGAGCTGGATAGAACTTG TGAGTTCAACAAGGCATGTGAATTGACCGATTGAGCTGGATAGAACTCG
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	ATGAGATTGGAGAAGATGTGGCTCCAATTGAACACATTGCAAGCATGAGA ATGAGATTGGAGAAGATGCGGCTCCAATTGAACACATTGCAAGCATGAGA ATGAGATTGGAGAAGATGTGGCTCCAATTGAACACATTGCAAGCATGAGA ATGAGATTGGAGAAGACGTGGCTCCAATTGAATACATTGCAAGCATGAGA ATGAGATAGGGGAAGATGTTGCCCAATTGAGCACATTGCAAGTATGAGA ATGAGATAGGGGAAGATGTTGCCCAATTGAGCACATTGCAAGCATGAGA
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	AGGAATTATTTACATCAGAGGTGTCTCACTGCAGAGCCACAGAATACAT AGGAATTATTTACAGCAGAGGTGTCTCATTCAGAGCCACAGAATACAT AGGAATTACTTCACAGCAGAGGTGTCTCAGTGCAGAGCCACAGAATATAT AGGAATTACTTCACAGCAGAGGTGTCCATTGCAGAGCCACAGAATATAT AGGAACTACTTCACAGCGGAGGTGTCCATTGCAGGGCTACTGAGTACAT AGGAACTACTTCACAGCGGAAGTGTCTCATTCAGGGCCACTGAGTACAT
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	AATGAAGGGGGTGTACATCAATACTGCCTTACTTAATGCATCTTGTGCAG AATGAAGGGGGTGTACATCAATACTGCCTTGCTTAATGCATCCTGTGCAG AATGAAGGGGGTATACATTAATACTGCCTTGCTTAATGCATCCTGTGCAG AATGAAGGGGGTATACATTAATACTGCCTTGCTTAATGCATCCTGTGCAG AATGAAGGGGGTTTACATAAATACAGCTTTGCTCAATGCATCTTGTGCAG AATGAAGGGGGTTTACATAAATACAGCTTTGCTCAATGCATCTTGTGCAG
NC_002022/- X17336/- M81579/- AF348174/-	CAATGGATGATTTCCAATTAATTCCAATGATAAGCAAGGTAGAACTAAG CAATGGATGATTTCCAATTAATTCCAATGATAAGCAAGGTAGAACTAAG CAATGGACGATTTCCAACCTAATTCCCATGATAAGCAAAATGAGAACTAA CAATGGACGATTTCCAACCTAATTCCCATGATAAGCAAGGTAGAACTAA

FIG. 9E

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AF257193/-
AF257191/-

CCATGGATGAC**TTCCAACTG**ATTCCAATGATAAGCAA**ATGC**AGAAC**AAAA**
CCATGGATGAC**TTCCAACTG**ATTCCAATGATAAGCAA**ATGC**AGAAC**AAAA**

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

GAGGGAAGGCGAAAGACCA**ACTT**GTATGGTTTCATCATAAAAGGAAGATC
GAGGGAAGGCGAAAGACCA**ATTT**GTACGGTTTCATCATAAAAGGAAGATC
GAGGGAAGGCGAAAGACCA**ATTTAT**ATGGTTTCATCATAAAAGGAAGATC
GAAGGAAGGCGAAAGACCA**ATTTAT**ATGG**CTT**CATCATAAAAGGAAGATC
GAAGGAAGG**AGGAGGACAAACCT**GTATGG**GTT**CATT**TGT**AAAAAGGAAG**GTC**
GAAGGAAG**AAAGGAACAAACCT**GTATGG**GTT**CATT**TATA**AAAGGAAG**GTC**

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

CCACTTAAGGAATGACACCGACGTGGTAA**ACTTT**GTGAGCATGGAGTT**TTT**
CCACTTAAGGAATGACACCGAT**TGT**GGTAA**ACTTT**GTGAGCATGGAGTT**TTT**
TCACTTAAGGAATGACACCGACGTGGTAA**ACTTT**GTGAGCATGGAGTT**TTT**
TCACTTAAGGAATGACACCGACGTGGTAA**ACTTT**GTGAGCATGGAGTT**TTT**
CCATTT**G**AGAAATGAT**ACT**GACGTGGT**GAACTTT**GTGAGTATGGA**ATTCT**
CCATTT**G**AGAAATGAT**ACT**GACGTGGT**GAACTTT**GTGAGTATGGA**ATTCT**

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

CTCTCACTGACCCAAGACTTGAACCACACAAATGGGAGAAGTACTGTGTT
CC**CT**CACTGACCCAAGACTTGAACCACACAAATGGGAGAAGTACTGTGTT
CTCTCACTGACCCAAGACTTGA**G**CCACACAAATGGGAGAAGTACTGTGTT
CTCTCACTGACCC**G**AGACTTGA**G**CCACACAAATGGGAGAA**ATACT**GTG**TC**
CC**CTT**ACTGACCCAAG**GCTGG**AGCCACACAAATGGG**AAA**AGTACTGTGTT
CC**CTT**ACTGACCCAAG**GCTGG**AGCCACACAAATGGG**AAA**AGTACTGTGTT

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

CTTGAGATAGGAGATATGCTTCTAAGAAGTGCCATAGGCCAGGTTTCAAG
CTTGAG**G**TAGGAGATATGCTTCTAAGAAGTGCCATAGGCCAT**TGT**GCAAG
CTTGAGATAGGAGATATGCT**A**CTAAGAAGTGCCATAGGCCAGG**T**GCAAG
CTTGAGATAGGAGATATGCT**A**CTAAGAAGTGCT**A**TAGGCCAGAT**G**TCAAG
CTTGAAATAGG**G**GAATGCT**CTTG**CGGACTGCAATAGGT**CAAGT**GCAAG
CTTG**AAG**TAGG**G**GAATGCT**CTTG**CGGACTGCAATAGGCCAGG**T**GCAAG

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

GCCCATGTTCTTGTATGTGAGGACAAATGGAACCTCAAAAATTA**AAAT**GA
GC**CT**TATGTTCTTGTATGTGAGGACAAATGGAACCTCAAAAATTA**AAAT**GA
GCCCATGTTCTTGTATGTGAGGACAAATGGAAC**AT**CAAA**G**ATTAA**AAAT**GA
GC**CT**TATGTTCTTGTATGTGAG**A**CAAAATGGAAC**AT**CAAA**G**ATTAA**AAAT**GA
GCCCATGTT**CT**GTATGTGAG**A**CA**AC**CGGAACCTCAAAAATTA**AG**ATGA
GCCCATGTT**CT**GTATGTGAG**A**CT**AA**CGGAACCT**CA**AAAATTA**AG**ATGA

NC_002022/-
X17336/-
M81579/-
AF348174/-
AF257193/-
AF257191/-

AATGGGGAATGGAGATGAGGCGTTGTCTCCTCCAGTCACTTCAACAAAT**T**
AATGGGG**G**ATGGAAATGAGGCGTTG**CCT**CCT**T**CAGTCACTTCAACAAAT**C**
AATGGGGAATGGAGATGAGGCGTTG**CCT**CCT**T**CAGTCACT**CCA**ACAAAT**C**
AATGGGGAATGGAGATGAGGCGTTG**CCT**CCT**T**CAGTCACT**CCA**ACAAAT**C**
AATGGGG**G**ATGGAAATGAGGCG**CTGCCTTCTT**CAAT**CT**CTTCAACAGATT
AATGGGG**G**ATGGAAATGAG**AC**CG**CTGCCTTCTT**CAAT**CT**CTTCAACAGATT

FIG. 9F

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NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	GAGAGTATGATTGAAGCTGAGTCCTCTGTCAAAGAGAAAGACATGACCAA GAGAGTATGATTGAAGCTGAGTCCTCTGTCAA GG GAGAAAGACATGACCAA GAGAGTATGATTGAAG CC GAGTCCTCTGTCAA GG GAGAAAGACATGACCAA GAGAGTATGATTGAAG CA GAGTCATCTGTCAAAGAGAAAGACATGACCAA GAGAG CA TGAT CG AG GG CTGAGTC TTCTAT CAAAGAGAAAGACATGACCAA GAGAG CA TGAT CG AG GG CTGAGTC TTCTAT CAAAGAGAAAGACATGACCAA
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	AGAGTTCTTTGAGAACAAATCAGAAACATGGCCCATTTGGAGAGTCTCCCA AGAGTTCTTTGAA AA ACAAATCAGAAACATGGCCCGTTGGAGAGT CCCCA AGAGTT TTTT CGAGA A TAAATCAGAAACATGGCCCATTTGGAGAGT CCCCA AGAGTT TTTT GAGA A TAAATCAGAAACATGGCCCATTTGG GG AGT CCCCA AGA ATT CTTTGAA AA ACAGAT CG GAGACATGGCC CA ATTGGAGAGT CACCTA AGA ATT CTTTGAA AA ACAGAT CG GAGACATGGCC CA ATTGGAGAGT CACCTA
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	AAGGAGTGGAGGAAAGTTCCATTGGGAAGGTCTGCAGGACTTTATTAGCA AAGGAGTGGAGGA AG GTTCCATTGGGAAGGTCTGCAG A ACTTTATT GGCA AAGGAGTGGAA GA AG GTTCCATTGGGAAGGTCTGCAGGACTTTATTAG CC A GGG AGTGGAA GAT GG GTTCCATTGGGAAGGTCTGCAGGACTTTATT GGCC A GGG AGTGGAGGA GG CTCCAT CG GAAGGT GT GCAG AACTTACT AGCA A GGG AGTGGAGGA GG CT CAAT CG GAAGGT GT GCAG AACTTACT AGCA
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	AAGTCGGTATTTAACAGCTTGTATGCATCTCCACA ACT AGAAGGATTTTC AAGTCGGTATT CA ACAGCTTGTATGCATCTCCACA ACT GGA AGGATTTTC AAGTCGGTATT CA ATAG CT GTATGCATCTCCACA ATT AGAAGGATTTTC AAGTCGGTATT CA ATAG CT GTATGCAT CCCCG CAATT GGA AGGGTTTTC AA ATCTGT GTT CA ACAG CTAT ATTC ATCTCCACA ACT CGA AGGATTTTC AA ATCTGT GTT CA ACAG CTAT ATTC ATCTCCACA ACT CGA AGGATTTTC
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	AGCTGAATCAAGAAA ACT GCTTCTTATCGTTCAGGCTCTTAGGGACAATC AGCTGAATCAAGAAA ACT GCTTCTTATCGTTCAGGCTCTTAGGGACA ACC AGCTGAATCAAGAAA ACT GCTTCTT GT CGTTCAGGCTCTTAGGGACAATC AGCTGAGTCAAGAAA ACT GCTTCTT GT CGTTCAGGCTCTT AAG GACAATC AGCTGAAT CG AGAAA ACTACTACT CATTGTT CAAGCA CTTAGGGACA ACC AGCTGAAT CG AGAAA ACTACTACT CATTGTT CAAGCA CTTAGGGACA ACC
NC_002022/- X17336/- M81579/- AF348174/- AF257193/- AF257191/-	TGGAACCTGGGACCTTTGATCTTGGGGGGCTATATGAAGCAATTGAGGAG TGGAACCTGGGACCTTTGATCTTGGGGGGCTATAT GAGCAATTGAGGAG TT GAACTGGGACCTTTGATCTTGGGGGGCTATATGAAGCAATTGAGGAG TT GAACTGG AA CTTTGATCTT GAG GGGCTATATGAAGCAATTGAGGAG TGGAACCTGG AA CTTT CG ATCTT GAA GGGCTATAT GAG GCAATTGAGGAG TGGAACCTGG AA CTTTGATCTT GAA GGGCTATAT GAG GCAATTGAGGAG

FIG. 9G

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NC_002022/-	TGCCTAATT	AATGATCCCTGGGTTTGGCTTAATGCTTCTGGTTCAACTC
X17336/-	TGGCTGA	TTAATGATCCCTGGGTTTGGCTTAATGCTTCTGGTTCAACTC
M81579/-	TGCCTG	ATTAATGATCCCTGGGTTTGGCTTAATGCGTCTTGGTTCAACTC
AF348174/-	TGCCTG	ATTAATGATCCCTGGGTTTGGCTTAATGCGTCTTGGTTCAACTC
AF257193/-	TGCCTG	ATTAATGATCCCTGGGTTTGGCTTAATGCATCTTGGTTCAACTC
AF257191/-	TGCCTG	ATTAATGATCCCTGGGTTTGGCTTAATGCATCTTGGTTCAACTC
NC_002022/-	CTTCCTTACACATGCATTGAGTTAGTTGTGGCAGTGCTACTATTTGCTAT	
X17336/-	CTTCCTCACACATGCATTGAGTAGTTGTGGCAATGCTACTATTTGCTAT	
M81579/-	CTTCCTAACACATGCATTAAAGTAGTTGTGGCAATGCTACTATTTGCTAT	
AF348174/-	CTTCCTAACACATGCATTAAAGTAGTTGTGGCAATGCTACTATTTGCTAT	
AF257193/-	CTTCCTCACACATGCACAAAGTAGTTGTGGCAATGCTACTATTTGCTAT	
AF257191/-	CTTCCTCACACATGCACAAAGTAGTTGTGGCAATGCTACTATTTGCTAT	
NC_002022/-	CCATACTGTCCAAAAAAGTACCTTGTTTCTACT--	(SEQ ID NO: 121)
X17336/-	CCATACTGTCCAAAAAAGTACCTTGTTTCTACT--	(SEQ ID NO: 122)
M81579/-	CCATACTGTCCAAAAAAGTACCTTGTTTCTACT--	(SEQ ID NO: 123)
AF348174/-	CCATACTGTCCAAAAAAGTACCTTGTTTCTACT--	(SEQ ID NO: 124)
AF257193/-	CCATACTGTCCAAAAAAGTACCTTGTTTCTACT--	(SEQ ID NO: 125)
AF257191/-	CCATACTGTCCAAAAAAGTACCTTGTTTCTACT--	(SEQ ID NO: 126)

FIG. 9H

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CLUSTAL W(1.4) multiple sequence alignment

Shaded area: selected siRNA sequence.

NC_002022	A/Puerto Rico/8/34	H1N1	1934	2233 nt
X17336	A/WSN/33	H1N1	1933	2233 nt
M21850	A/chicken/FPV/Rostock/34	H7N1	1934	2233 nt
AF156457	A/turkey/California/189/66	H9M2	1966	2140 nt
M26087	A/Equine/London/1416/73	H7N7	1973	2233 nt
M26088	A/gull/Maryland/704/77	H13N6	1977	2233 nt
AF222820	A/swine/Hong Kong/9/98	H9N2	1998	1635 nt

NC_002022/-	AGCGAAAGCAGGTACTGATCCAAAATGGAAGATTTTGTGCGACAATGCTT
X17336/-	AGCGAAAGCAGGTACTGATTCAAATGGAAGATTTTGTGCGACAATGCTT
M21850/-	AGCGAAAGCAGGTACTGATCCAAAATGGAAGAATTTGTGCGACAATGCTT
AF156457/-	-----ATGGAAGACTTCGTGCGACAATGCTT
M26087/-	AGCAAAGCAGGTACTGATCCAAAATGGAAGACTTTGTGCGACAATGCTT
M26088/-	AGCAAAGCAGGTACTGATTCAAATGGAAGACTTTGTGCGACAATGCTT
AF222820/-	-----

NC_002022/-	CAATCCGATGATTGTCGAGCTTGCGGAAAAACAATGAAAGAGTATGGGG
X17336/-	CAATCCGATGATTGTCGAGCTTGCGGAAAAAGCAATGAAAGAGTATGGAG
M21850/-	CAATCCAATGATCGTCGAGCTTGCGGAAAAAGCAATGAAAGAATATGGAG
AF156457/-	CAATCCAATGATTGTCGAGCTTGCGGAAAAAGCAATGAAAGAATATGGAG
M26087/-	CAATCCAATGATCGTCGAGCTTGCGGAAAAAGCGATGAAAGAATATGGAG
M26088/-	CAATCCAATGATCGTCGAGCTTGCGGAAAAAGCAATGAAAGAATATGGAG
AF222820/-	-----

NC_002022/-	AGGACCTGAAAATCGAAACAAACAAATTTGCAGCAATATGCACTCACTTG
X17336/-	AGGACCTGAAAATCGAAACAAACAAATTTGCAGCAATATGCACTCACTTG
M21850/-	AGGACCCGAAGATTGAAACAAACAAATTCGAGCAATATGCACACATTTG
AF156457/-	AGGGCCGAAAATCGAAACAAACAAATTTGCAGCAATATGCACTCATTTG
M26087/-	AGGACCCGAAAATTGAAACAAACAAATTTGCAGCAATATGCACTCACTTG
M26088/-	AGGATCCAAAATCGAGACAAACAAATTCGCTGCAATATGCACACACTG
AF222820/-	-----

NC_002022/-	GAAGTATGCTTCATGTATTAGATTTTCACTTCATCAATGAGCAAGGCGA
X17336/-	GAAGTGTGCTTCATGTATTAGATTTTCACTTCATCGATGAGCAAGGCGA
M21850/-	GAAGTGTGTTTCATGTATTAGATTTTCACTTTATTGATGAACGGGGAGA
AF156457/-	GAAGTGTGTTTCATGTATTAGACTTTCACTTCATCGATGAGCGAGGCGA
M26087/-	GAAGTCTGCTTCATGTACTCGGATTTCACTTTATTAATGAACGGGCGA
M26088/-	GAAGTGTGTTTCATGTATTAGACTTCCATTTATTGATGAACGGGGTGA
AF222820/-	-----

NC_002022/-	GTCAATAATCGTAGAAGCTTGGTGATCCTAATGCACTTTTGAAGCACAGAT
-------------	---

FIG. 10A

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X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

GTCAATAGTCGTAGAACTTGGCGATCCAATGCACTTTTGAAGCACAGAT
GTCAAAGATTGTAGAATCTGGTGACCCAATGCACTCTTGAAGCACCGAT
ATCAATAATTGTAGAATCCGGAGATCCGAATGCCCTCTTGAAGCACAGAT
GTCAGTGATCATAGAGTCTGGTGATCCAATGCTCTTTTGAAGCACAGAT
GTCGATAATTGTTGAGTCTGGTGATCCAATGCACTCTTAAACATCGAT

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

TTGAAATAATCGAGGGAAGAGATCGCACAATGGCCTGGACAGTAGTAAAC
TTGAAATAATCGAGGGAAGAGATCGCACAATAGCCTGGACAGTAATAAAC
TTGAGATAATTGAAGGAAGAGATCGCACGATGGCCTGGACGGTGGTGAAT
TTGAAATAATTGAGGGAAGAGATCGCACAATGGCCTGGACAGTGGTGAAC
TTGAAATCATTGAAGGAGAGATCGAACAATGGCATGGACAGTAGTGAAC
TTGAAATAATCGAAGGAAGAGACCGTACTATGGCCTGGACAGTGGTGAAT

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

AGTATTTGCAACACTACAGGGGCTGAGAAACCAAAGTTTCTACCAGATTT
AGTATTTGCAACACTACAGGGGCTGAGAAACCAAAGTTTCTACCAGATTT
AGCATTGCAATACTACAGGGGTTGAGAAACCAAAGTTCTCTCCGGATTT
AGCATCTGTAACACTACAGGGGTTGAGAAACCAAAGTTTCTCCCAGATCT
AGTATCTGCAACACCACAAGAGCTGAAAAACCAAAGTTCTCTCCCAGATTT
AGCATTGCAACACCACAGGAGTTGAGAAACCAAAGTTTCTCTCCGACTT

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

GTATGATTACAAGGAAAATAGATTCATCGAAATTGGAGTAACAAGGAGAG
GTATGATTACAAGAAGATAGATTCATCGAAATTGGAGTAACAAGGAGAG
GTATGATTATAAGGAGAACCAGTTCATTGAAATTGGAGTGACAAGAAGGG
ATATGACTACAAGGAGAACCAGTTCATTGAGATTGGAGTGACAAGGAGAG
GTACGACTATAAAGAGAACCAGTTTGTTGAAATTGGTGTACAAGGAGAG
ATATGATTATAAAGAAAATCGTTTCATTGAAATTGGAGTGACAAGGAGGG

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

AAGTTCACATATACTATCTGGAAAAGGCCAATAAAATTAAATCTGAGAAA
AAGTTCACATATACTATCTGGAAAAGGCCAATAAAATTAAATCTGAGAAG
AGGTCCACATATACTACTTAGAAAAAGCCAATAAGATAAAATCTGAGAAG
AAGTCCACATATACTACTCTGGAAAAGGCCAATAAAATAAAGTCTGAGAAG
AAGTTCACATATACTACTTGGAGAAAGCCAACAAAATAAAGTCTGAGAAA
AGGTCCATATATACTATCTAGAAAAGGCCAATAAGATAAAGTCTGAGAAG

X17336/-
M21850/-
NC_002022/-
AF156457/-
M26087/-
M26088/-

ACACACATCCACATTTTCTCATTCACTGGGGAGGAAATGGCCACAAAGGC
ACACACATCCACATCTTCTCATTCACTGGGGAAGAAATGGCCACTAAGGC
ACACACATCCACATTTTCTCGTTCACTGGGGAAGAAATGGCCACAAAGGC
ACACATATCCACATCTTCTCGTTCAAGGAGAAGAGATGGCCACAAAGGC
ACACATATTACATTTTCTCATTACAGGAGAGGAAATGGCTACAAAAGC
ACACACATCCATATCTTTTCTCATTCACTGGAGAAGAAATGGCCACAAAGC

FIG. 10B

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AF222820/-

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

CGACTACACTCTCGATGAAGAAAGCAGGGCTAGGATCAAAACCAGGCTAT
CGACTACACTCTCGATGAAGAAAGCAGGGCTAGGATCAAAACCAGGCTAT
GGACTACACTCT**T**GATGAAG**AG**AGCAG**AGCA**AGGATCAAAACCAGGCTAT
TGACTACACTCT**T**GATGAAGAAAG**T**AGGG**CC**CAG**AAT**CAAA**ACT**AG**ACTGT**
GGATTATACCTTGATGAAGAAAG**T**AG**AGCC**AGGATCAAAACCAG**ACTAT**
AGACTACACTCT**T**GATGAAGAG**AGT**AG**AGCA**AGGATCAAAACCAG**ACTAT**
-----**AGCA**AAAGCAGGG**CA**AGGATCAAA**ACT**AGGCT**GT**

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

TCACCATAAGACAAGAAATGGCCAGCAGAGGCCTCTGGGATTCCTTTCTG
TCACCATAAGACAAGAAATGG**CT**AGCAGAGGCCTCTGGGATTCCTTTCTG
TCACCATAAGACAAGAAATGGCCAG**T**AGAGGCCTCTGGGATTCCTTTCTG
TCACCATAAG**GCAG**GAAATGGCCAG**T**AGAG**GTCT**CTGGGATTCCTTTCTG
TCACCATAAGACAAGAAATGGCCAGCAGAGGCCT**TT**GGG**ACT**CCTTTCTG
TC**ACT**ATAAGACAAGAAATGGCCAG**T**AGAG**GTCT**CTGGGATTCCTTTCTG
TCACCATAAGACA**GGAACT**GG**CT**AGCAG**GGGTCTAT**GGGATTCCTTTCTG

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

CAGTCCGAGAGAGGAGAAGAGACAATTGAAGAAAGTTTGAAATCACAGG
CAGTCCGAGAGAGG**CGA**AGAGACAATTGAAGAAAG**ATTT**GAAATCACAGG
CAGTCCGAGAGAGG**CGA**AGAGACAATTGAAGAAAG**ATTT**GAAATCACAGG
CAGTCCGAGAGAGG**CGA**AGAGACAATTGAAGAAAG**ATTT**GAAATCACAGG
CAGTCCGAGAGAGG**CGA**AGAGACAATTGAAGAAAG**ATTT**GAAATCACAGG
CAGTCCGAGAGAGG**CGA**AGAGACAATTGAAGAAAG**ATTT**GAAAT**T**CACAGG
CAGTCCGAGAGAGG**CGA**AGAGACAATTGAAGAAAG**ATTT**GAAATCACAGG

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

AACAATGCGCAAGCTTGCCGACCAAAGTCTCCCGCCGA**ACTTCTCCAGCC**
AACAATGCGCAAGCTTGCCGACCAAAGTCTCCCGCC**AA**ACTTCTCCAGCC
AACC**AT**GCGCAGGCTTGCCGA**ACA**AAAGTCTCC**CA**CCGA**ACTTCTCCAGCC**
AACAATGCGCAGGCTTGCCGACCAAAGTCTCC**CA**CCGA**ACTTCTCCAGCC**
GACAATGCGCAGGCTTGCCG**ATTAC**AGTCTCC**CA**CCGA**ACTTCTCCAGCC**
AACC**AT**GCGCAGGCT**CG**CCGACCAAAGTCTCC**CA**CCGA**ACTTCTCCAGCC**
AACAATGCGCAGGCTTGCCGACCAAAGTCTCC**CA**CCGA**ATTTCTCCAGCC**

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

TTGAAAATTTTAGAGCCTATGTGGATGGATT**CGA**ACCG**AA**CGG**CTACATT**
TTGAAAATTTTAGAGCCTATGTGGATGGATT**CGA**ACCGA**AC**CGGCTACATT
TTGAAA**ACTT**TAGAGCCTATGTGGATGGATT**CA**AACCGA**AC**CGGCT**GCATT**
TTGAAA**ACTT**TAGAGCCTATGTGGATGGATT**CGA**ACCGA**AC**CGGCT**GCATT**
TTGAAAATTTTAGAGCCTATGTGGATGGATT**CGA**ACCGA**AC**CGGCT**GCATT**
TTGAAA**ACTT**TAGAGCCTATGTGGATGGATT**CGA**ACCGA**AC**CGGCT**GCATT**
TTGAAAATTTTAGAGCCTATGTGGATGGATT**CGA**ACCGA**AC**CGGCT**GCATT**

NC_002022/-
X17336/-

GAGGGCAAGCTGTCTCAAATGTCCAAAGAAGTAAATGCTAGAATTGAACC
GAGGGCAAGCT**TT**CTCAAATGTCCAAAGAAGTAAATGCTAGAATTGAACC

FIG. 10C

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M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

GAGGGCAAGCTTTCTCAAATGTCAAAGAAGTAAATGCAAGAATCGAGCC
GAGGGCAAGCTTTCTCAAATGTCAAAGAAGTGAATGCAAGAATTGAACC
GAGAGCAAGCTTTCTCAAATGTCAAAGAAGTAAATACCAGAATCGAGCC
GAGGGCAAGCTTTCTCAAATGTCAAAGAAGTAAATGCAAGAATTGAACC
GAGGGCAAGCTTTCTCAGATGTCAAAGAAGTAAAGGCCAGAATTGAGCC

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

TTTTTTGAAAACAACACCACGACCACTTAGACTTCCGAATGGGCCTCCCT
TTTTTTGAAATCAACACCACGACCACTTAGACTTCCGGATGGGCCTCCCT
ATTCTTGAAGACAACACCACGCCCTCTCAGATTACCTGATGGGCCTCCCT
CTTTTGAAGACAACACCACGCCCACTCAAGCTACCAGATGGGCCTCCCT
ATTTTCAAGACAACACCACCGGCCACTCAGGACACCGGGTGGTCCACCT
ATTTTGAAGACAACACCACGCCCTCTCAGATTACAGAAGGGCCTCCCT
CTTTCTTAAAACAACACCACGTCCTCTAAGACTGCCGGTGGACCTCCCT

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

GTTCTCAGCGGTCAAATTCCTGCTGATGGATGCCTTAAATTAAGCATT
GTTCTCAGCGGTCAAATTCCTGCTGATGGATGCCTTAAATTAAGCATT
GTTCTCAGCGGTCAAATTCCTACTGATGGATGCTCTGAAATTAAGCATT
GCTCCAGCGGTCAAATTCCTGCTAATGGACGCTTTGAAATTAAGCATT
GTTATCAGCGATCAAATTCCTGCTGATGGATGCTCTGAAATTTAGCATT
GCTCTCAGCGGTCAAATTTCTGTTGATGGATGCTCTGAAGCTTAGCATT
GTTCCAAAGGTCAAATTCCTACTGATGGATGCTCTGAAATTAAGCATT

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

GAGGACCCAAGTCATGAAGGAGAGGGAATACCGCTATATGATGCAATCAA
GAGGACCCAAGTCATGAGGGAGAGGGGATACCGCTATATGATGCAATCAA
GAAGACCCAAGTCATGAGGGGAGGGGATACCACTACATGATGCAATCAA
GAGGACCCAAGCCATGAAGGAGAAGGGATACCGCTATATGATGCAATCAA
GAGGATCCAAGTCACGAGGGAGAGGGAATACCGCTGTATGATGCCATCAA
GAAGACCCGAGTCATGAGGGTGAGGGAATACCACTGTATGATGCTATCAA
GAGGACCCGAGTCATGAGGGAGAGGGGATACCGCTGTATGATGCCATCAA

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

ATGCATGAGAACATTCTTTGGATGGAAGGAACCCAATGTTGTTAAACCAC
ATGCATGAGAACATTCTTTGGATGGAAGGAACCCAATGTTGTTAAACCAC
ATGCATGAAGACATTCTTTGGCTGGAAAGAGCCCAATATTGTCAAACCGC
ATGCATGAAAACATTCTTTGGTGGAAGAACCCAATATTGTTAAACCAC
ATGCATGAAAACCTTCTTTGGATGGAAGAGCCCAATATTGTTAAACCAC
ATGTATGAAGACCTTTTTTGGCTGGAAAGAGCCCAACATTGTCAAGCCAC
ATGCATGAAAACATTTTTCGGCTGGAAAGAGCCCAAAATTATCAAGTCAC

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

ACGAAAAGGGAATAAATCCAAATTATCTTCTGTCATGGAAGCAAGTACTG
ACGAAAAGGGAATAAATCCAAATTATCTTCTGTCATGGAAGCAAGTACTG
ATGAGAAGGGCATAAATCCCACTATCTCCTGGCTTGAAGCCAGGTGCTA
ATGAAAAAGGAATAAATCCGAATTACCTCTTGGCATGGAACAAGTACTA
ATGAAAAGGGTATAAACCCAACTATCTCCAGGCTTGAAGCAAGTGTTA
ATGAGAGGGGCATAAACCTAATTATCTCCTGGCTTGAAGCAAGTGCAA
ATGAGAAGGGTATAAACCCAAATTATCTCCTAGCTTGAAGCAGGTGCTG

FIG. 10D

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NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

GCAGAACTGCAGGACATTGAGAATGAGGAGAAAATTCCAAAGACTAAAAA
GCAGAACTGCAGGACATTGAGAATGAGGAGAAAATTCAA**GG**ACTAAAAA
GCAGAACT**GA**AGGATATTGAGAATGAGGAGAAAATTC**CAAAA**CAAAAAA
GC**GG**AACT**AC**AGGAT**CT**TTG**AA**AATGA**AG**AGAAAATTC**CA**AA**GA**CTAAAAA
GCAGAACT**AC**AGGAC**CT****CG**AAAA**CG**AA**GA**AAAAAT**CC**CTAAGAC**CA**AGAA
GCAGAACTGCAGGATATTG**AA**AATGA**AG**CA**AG**ATTCCAAAGAC**AAAA**AA
GCAG**AG**CT**CC**AGGACATTG**AA**AATGAT**GA**AAAGAT**CC**CA**AAA**CA**AG**AA

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

TATGAAAAAACAAGTCAGCTAAAGTGGGCACTTGGTGAGAACATGGCAC
TATGA**AG**AAAA**CA**AGT**CA**GT**TAA**AGTGGGCACTTGGTGAGAACATGGCAC
TATGA**AG**AAAA**CA**AG**CC**AGT**TAA**AGTGGGCACTTGGTGAGAACATGGCAC
CATGA**AG**AAAA**CA**AG**CC**A**ATT****TAA**AGTGGGCACTTGGTGAGAA**TAT**GGCAC
TATGAAAAAACAAGT**CA**A**TTG**AA**AT**GGGCACTTGGTGAGAA**TAT**GGC**GC**
CATGA**AG**AAAA**CA**AG**CC**A**ATT****TAA**AGTGGGCACTTGGTGAGAACATGGCAC
CATGA**AG**AAAA**CA**AG**CC**A**ATT****TAA**AGTGGGCA**TTA**GGTGAGAACATGGCAC

NC_002022/-
X17336/-
M21850/-
NC_002022/-
AF156457/-
M26087/-
M26088/-
AF222820/-

TATGATAGTGATGAACCAGAATTGAGGTCGCTTGCAAGTTGGATTCAGAA
CAG**AAA**AG**TG**AG**CTTT**GAG**CA**TT**GT**AA**AG**AT**GT**AG**GC**GAT**TT**G**AA**GC**AA**
CAGAGAAAG**TG**AG**CTTT**GAG**GA**TT**GC**AA**GG**ACAT**AG**CGAT**CT**G**AA**GC**AG**
TATGATAGTGATGAACCAGAATTGAGGTCGCTTGCAAGTTGGATTCAGAA
CAG**AAA**AG**TG**GGAT**TTT**GAG**GA**CT**G**CAAG**AT**GT**CA**GC**GA**CT**CT**G**AA**GC**AA**
CAGAGAAAG**TG**GGAT**TTT**GAG**GA**TT**GT**AA**AG**ACAT**CA**GT**GAT**TT**G**AA**AC**AG
CAGAGAAAG**TG**GACT**TT**G**AA**AGAT**TG**CAAG**AT**GT**CA**GC**GA**TT**T**G**AA**ACAG
CAGAGAAAG**TG**GACT**TT**GAG**GA**TT**GC**AA**AG**CGTT**AG**T**G**ACT**G**AA**AC**AA

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

TATGATAGTGATGAACCAGAATTGAGGTCGCTTGCAAGTTGGATTCAGAA
TATGATAGTGATGAACCAGAATTGAGGTCGCTTGCAAGTTGGATTCAGAA
TATGA**CA**GTGATGA**CC**CAGAA**CA**GAGAT**CA**CT**AG**CGAGTTGGAT**CC**CAG**AG**
TATGA**CA**GTGATGA**CC**GA**AA****CC**GAGATCGCTTGCAAGTTGGATT**C**CAG**AG**
TATGA**CA**GTGATGA**CC**CAGAA**CA**AGGT**CC**CTTGCAAGTTGGATT**CA**AG**AG**
TATGA**CA**CGATGAG**CC**CAGAA**CA**AGGT**CG**CT**AG**CAAGTTGGT**CC**AA**AG**
TATGATAGTGATGAACCAGAG**CC**CA**AT**CGCT**AG**CAAGTTGGAT**CC**CAG**AG**

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

TGAGTTCAACAAGGCATGCGAACTGACAGATTCAAGCTGGATAGAGCTTG
TGAGTTCAACAAGGCAT**GT**GAACTGAC**CG**ATTCAAGCTGGATAGAGCT**CG**
TGA**ATT**CAACAA**AG**CAT**GT**GAGCTGAC**CG**ATT**CA**GGT**T**GGATAGAACTTG
TGAGTTCA**ATA**AGGC**GT****GT**GAACTGACTGATTCAAGCTGGATAGAGCTTG
TGAGTTCAACAA**AG**CT**TT****GT**GAGCTGACAGATTCAAGCTGGATAGAGCT**CG**
TGA**ATT**CAACAA**AG**CT**TT****GT**GA**ATT**GACTGATTCAAGCTGGATAGAACT**CG**
TGA**ATT**CAACAAGGCAT**GT**GAG**TT**GAC**CG**ATTCAAGCTGG**T**AGAACTTG

NC_002022/-
X17336/-

ATGAGATTGGAGAAGATGTGGCTCCAATTGAACACATTGCAAGCATGAGA
ATGAGATTGGAGAAGAT**CG**GGCTCCAATTGAACACATTGCAAGCATGAGA

FIG. 10E

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M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

ATGAAATAGGAGAAGATGTAGCCCAATCGAGCACATTGCAAGTATGAGG
ACGAGATTGGGAAGATGTTGCCCAATTGAGCACATTGCAAGCATGAGG
ATGAAATTGGGAGGATGTTGCCCAATAGAACACATTGCCGAGCATGAGG
ATGAAATAGGGGAAATGTGCGCCCAATCGAGCATATTGCAAGCATGAGG
ATGAAATAGGAGAAGATGTTGCTCCAATCGAGCACATTGCCGAGTATGAGA

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

AGGAATTATTTACATCAGAGGTGTCTCACTGCAGAGCCACAGAATACAT
AGGAATTATTTACAGCAGAGGTGTCTCATTGCAGAGCCACAGAATACAT
AGAACTATTTACAGCGGAAGTGTCTCACTGCAGGGCAACGGAGTACAT
AGGAATTATTTACAGCGGAGGTGTCTCATTGTAGAGCCACAGAATACAT
AGGAATTATTTACTGCTGAGGTTCCTATTGTAGAGCAACTGAATATAT
AGGAATTATTTACAGCTGAAGTGTCTCACTGCAGGGCAACAGAGTACAT
AGGAATTACTTCACAGCAGAAGTGTCACTGCGGGCTACTGAGTATAT

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

AATGAAGGGGTGTACATCAATACTGCCTTACTTAATGCATCTTGTGCAG
AATGAAGGGGTGTACATCAATACTGCCTTGCTTAATGCATCCTGTGCAG
AATGAAAGGGGTATACATAAACACGGCCTTGCTCAATGCATCTTGTGCAG
AATGAAAGGGGTATACATCAATACTGCCTTGCTCAATGCATCCTGTGCGG
AATGAAGGGAGTATACATCAACACTGCTCTACTCAATGCATCCTGCGCTG
AATGAAGGGAGTGTACATAAACTCAGCTTTACTCAACGCCTCTTGTGCAG
AATGAAGGGAGTGTATATTAAACACAGCGTTGCTCAATGCATCTTGTGCAG

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

CAATGGATGATTTCCAATTAATTCCAATGATAAGCAAGGTAGAACTAAG
CAATGGATGATTTCCAATTAATTCCAATGATAAGCAAGGTAGAACTAAG
CTATGGATGACTTCCAGCTGATCCCAATGATAAGCAAATGCAGGACCAAA
CTATGGATGACTTCAACTGATTCCAATGATCAGCAAGGTAGAACTAAA
CGATGGATGACTTCCAATTAATCCCGATGATAAGCAAATGCAGGACCAAG
CCATGGATGATTTTCAGTTGATCCCAATGATAAGCAAATGCAGAACCAAA
CCATGGATGACTTCCAATTGATTCCAATGATAAGCAAATGCAGAACAAAA

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

GAGGGAAGGCGAAAGACCAACTTGATGGTTTCATCATAAAAGGAAGATC
GAGGGAAGGCGAAAGACCAATTTGTACGGTTTCATCATAAAAGGAAGATC
GAAGGAAGACGGAAGACGAATCTGTATGGATTTCATTATAAAAGGAAGATC
GAGGGAAGAAAGAAAGACAAATTTGTATGGTTTCATTATAAAAGGGAGATC
GAAGGGAAGGAAGACAAATTTGTATGGATTTCATCATAAAAGGAAGGTC
GAAGGACGACGGAACAAATTTGTATGGATTTCATCATAAAAGGAAGGTC
GAAGGGAAGACGGAACAAACCTGTATGGTTTCATTATCAAGGAAGGTC

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

CCACTTAAGGAATGACACCGACGTGGTAACTTTGTGAGCATGGAGTTTT
CCACTTAAGGAATGACACCGATGTGGTAACTTTGTGAGCATGGAGTTTT
TCACTTGAGGAATGATACTGATGTGGTGAATTTTGTGAGCATGGAGTTCT
CCACCTGAGGAACGACACCGATGTGGTAACTTTGTGAGCATGGAGTTTT
CCATTTAAGAAATGACACTGACGTGGTAACTTTGTAAAGCATGGAGTTTT
TCATTTGAGGAATGATACTGATGTGGTGAATTTTGTGAGCATGGAATTTT
CCATTTGAGGAATGATACTGATGTGGTAACTTTGTGAGCATGGAATTTT

FIG. 10F

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NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

CTCTCACTGACCCAAGACTTGAACCACACAAATGGGAGAAGTACTGTGTT
CCCTCACTGACCCAAGACTTGAACCACACAAATGGGAGAAGTACTGTGTT
CTCTCACTGACCC**GAGG**CTTGAGCCACACAAGTGGGAGAAGTATTGTGTT
CCCTCACTGACCC**GAGG**CTTGAACCGCACAAATGGGAGAAGTACTGTGTT
CTCTCAC**CGAT**CCAAGACTTGAGCCACACAATTGGGAGAAGTACTGTGTT
CTCTTACTGACCC**TAGATT**AGAACCACACAAGTGGGAGAAGTATTGTGTC
CTCTTACAGACCC**GAACT**GGAACCACACAAGTGGGAGAAGTACTGTGTT

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

CTTGAGATAGGAGATATGCTTCTAAGAAGTGCCATAGGCCAGGTTTCAAG
CTTGAG**GT**AGGAGATATGCTTCTAAGAAGTGCCATAGGCCAT**GTGT**CAAG
CTTGAAATAGGAGACATGCT**CCTGCGGACTGCAATAGGCCAAGTAT**CAAG
CTTGAAATAGGG**GACAT**GCTTCTAAGAACTGCCATAGGCCAAGTTT**CGAG**
CTAGAAAT**CGGAGACAT**GCT**CCTAAGAACTGCTGTAGGCCAAGTGT**CAAG
CTTGAAATAGGG**GATAT**GCT**CCTACGAACTGCAATAGGCCAAGTTT**CAAG
CTTGAA**GTAGGGACAT**GCT**CCTGAGAACTTCAATAGGCCAGGTGT**CAAG

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

GCCCATGTTCTTGTATGTGAGGACAAATGGAACCTCAAAAATTTAAATGA
GC**CT**ATGTTCTTGTATGTGAGGACAAATGGAACCTCAAAAATTTAAATGA
GCCCATGTT**CT**GTATGTGAGAA**CCAAT**GGAACCT**CCAAAATCAAGAT**GA
GCCCATGTT**CT**GTATGTGAGAA**CAATGGGACCTCCAAAATCAAAAT**GA
ACCCATGTTTTTGTATGTAA**GGACCAATGGGACCTCTAAAATTTAAAT**GA
ACCCATGTTTCTGTATGTGA**CAACCAATGGAACCTTCCAAGATCAAAAT**GA
GCCCATGTT**CTATAC**GTGAGAA**CCAATGGAACCTCCAAAATTTAAAT**GA

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

AATGGGGAATGGAGATGAGGCGTTGTCTCCTCCAGTCACTTCAACAAATT
AATGGGG**GAT**GGA**AT**GAGGCGTT**GCCTCCTTCAGTCACTTCAACAAATC**
AATGGGG**TAT**GGAGATGAG**ACGTTGCCTTCTTCAGTCCCTTCAACAGGTT**
AATGGGG**GAT**GGA**AT**GAG**ACGCTGTCTTCTCCAGTCCCTTCAACAAATT**
AATGGGGAATGGA**AT**GAGGCG**CTGCCTCCTTCAGTCTTACAGCAGATT**
AATGGGG**TAT**GGAGATGAGGCGTTGT**CTTCTTCAATCCCTCCAGCAAATC**
AATGGGGAATGGAGATGAGGCGTT**GCCTCCTTCAATCCCTTCAACAAATT**

NC_002022/-
X17336/-
M21850/-
AF156457/-
M26087/-
M26088/-
AF222820/-

GAGAGTATGATTGAAGCTGAGTCCTCTGTCAAAGAGAAAGACATGACCAA
GAGAGTATGATTGAAGCTGAGTCCTCTGTCAAGGAGAAAGACATGACCAA
GAAAG**CATG**TTGAGGCTGAGTCCTCTGTCAAGGAGAAAGACATGACTAA
GAGAGTATGATTGAAG**CGAGT**CCTCTGTCAAAGAGAAAGACATGACCAA
GAAAG**CATGA**CTGAAGCTGAGTCCT**AGT**CAAAGAA**AAAG**ACATGACCAA
GAAAG**CATGATTGAGG**CGAGTCCTCTGTCAAGGAA**AAAG**ACATGACTAA
GAGAG**CATGATTGAGG**CAAGT**TTCTAT**CAAAGAGAA**AG**ACATGACCAA

NC_002022/-
X17336/-
M21850/-

AGAGTTCCTTTGAGAACAAATCAGAAACATGGCCCATTTGGAGAGTCTCCCA
AGAGTTCCTTTGAA**ACAAAT**CAGAAACATGGCC**CGTTGGAGAGTCCCCA**
GGA**ATTCTTTGAA**ACAA**GTCAAGACGT**GGCCCATTTGGAGAA**TACCTA**

FIG. 10G

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AF156457/- AGAGTTCTTTGAA**AA**ACAAATCAGAAACATGGC**CT**ATTGG**GGA**ATCTCCCA
M26087/- AGA**ATT**CTTTGAGAA**CAA**AT**CGG**AGACATGGC**CT**AT**AGG**AGAGT**CCCC**CA
M26088/- AGA**ATT**CTTTGAA**AA**ACA**AGT****CGG**AGACATGGCC**ATT**GGAG**AAT****CAC**CCA
AF222820/- AGA**ATT**TTTTGAA**AA**ACA**AGT****CGG**AGAC**GT**GGCC**GATT**GGAGAGT**CAC**CTA

NC_002022/- AAGGAGTGGAGGAAAGTTCCATTGGGAAGGTCTGCAGGACTTTATTAGCA
X17336/- AAGGAGTGGAGGAA**G**TTCCATTGGGAAGGTCTGCAG**A**ACTTTATT**GG**CA
M21850/- AAGGAGTGGAA**GAA****G**TTCCAT**CGG**GAA**AGT****GT**GCAGGAC**CTT**ACT**GGC**G
AF156457/- **AGGG**GGTGGAGGAA**G**ATCCATTGG**AA**AGGTCTGCAGGACT**CT****GTT**GGCA
M26087/- AAGGAGTGGAA**GAA****G**CT**CA**AT**CGG**GAA**AGT**TTGCAGGAC**CTT****GTT**AGCA
M26088/- AAGGAGT**AGA****A**GAA**G**TTCCATTGGGAA**AGT**ATGCAGGACT**CT****GCT**AGCA
AF222820/- **AGGG**AGTGGAGGAA**G**CTCCAT**CGG**GAAAG**GT**GCAGGAC**CTT**ACTAGCA

NC_002022/- AAGTCGGTATTTAACAGCTTGTATGCATCTCCACA**ACT**AGAAGGATTTTC
X17336/- AAGTCGGTATT**CA**ACAGCTTGTATGCATCTCCACA**ACT****GGA**AGGATTTTC
M21850/- AAGT**CT**GTATTTAACAGCTT**AT**ATGCAT**CCC**ACA**ACT****TG**AGGGATTTTC
AF156457/- AAGT**CT**GTATT**CA**ACAGCTTGT**AC**GCATCTCCACA**AGT****GGA**AG**GTTTCT**C
M26087/- **AA**AT**CT**GT**G**TTAACAG**TTT**ATATGCATCTCCACA**ACT****GGA**AG**GTTT**TC
M26088/- AAGT**CT**GTATT**CA**ACAGCTTGTATGCATCTCCACA**ACT****TGA**AG**GTTT**TC
AF222820/- AAGT**CT**GT**GTT****CA**ACAGCTTGTATGCATCTCCACA**ACT****CG**AG**GGG**TTTTC

NC_002022/- AGCTGAATCAAGAAAACTGCTTCTTATCGTTCAGGCTCTTAGGGACAATC
X17336/- AGCTGAATCAAGAAAACTGCTTCTTATCGTTCAGGCTCTTAGGGACA**ACC**
M21850/- AGC**GGA**AT**CT**AGAAAACTGCTCCT**CATT**GTT**CAGG**CTCTTAGAGACA**ACC**
AF156457/- AGCTGAATCAAG**GAA**AACTGCTTCTTATCGTTCAGGCTCTTAGGGACA**ACC**
M26087/- AGCTGAAT**CTAG****GAA**AA**ATA**CTTCT**CATT**GTT**CAGG**CTTAGGGACA**ACC**
M26088/- AGCTGA**GT**CAAGAAA**G**CTGCTTCT**CATT**GTT**CAGG**CACTTAGGGACA**ACC**
AF222820/- AGCTGAATCAAGAAAACT**GTT**ACT**CATT**GTT**CAGG**CACTTAGGGACA**ACC**

NC_002022/- TGGAACTGGGACCTTTGATCTTGGGGGGCTATATGAAGCAATTGAGGAG
X17336/- TGGAACTGGGACCTTTGATCTTGGGGGGCTATATG**AAGCAATTGAGGAG**
M21850/- TGGAACTGG**AA**CTTT**CG**ATCTTGG**AGG**GCTATAT**GG**AGCAATTGAGGAG
AF156457/- TGGAACTGG**AA**CTTTGATCTTGG**AGG**ATT**GC**ATGAAGCAATTGAGGAG
M26087/- TGGAACTGG**AA**CTTTGAT**ATT**GGGGGGCTATATGAAT**CA**ATTGAGGAG
M26088/- TGGAACTGG**C**ACCTTT**CG**ATCTTGGGGGGCTATATGAAGCAATTGAGGAG
AF222820/- TGGAACTGG**AA**CTTT**CG**AC**ATT****GAA**G**ACT****GT**ATGAAGCAATTGAGGAG

NC_002022/- TGCCTAATT**AATGATCCCTGGGTTTGGCTAATGCTTCTTGGTTCAACTC**
X17336/- **TGGCTG**ATTAAATGATCCCTGGGTTT**GCTTAATGCTTCTTGGTTCAACTC**
M21850/- TGCCT**G**ATTAAATGATCCCTGGGTTT**GCTTAATGC**ATCTTGGTTCAACTC
AF156457/- TGCCT**G**ATTAAATGATCCCTGGGTTT**GCTTAATGC**ATCTTGGTTCAACTC
M26087/- **TGTCT****G**ATTAAATGATCCCTGGGTTT**GCT****CA**AT**GC**ATCTTGGTTCAACTC
M26088/- TGCCT**G**ATTAAATGATCCCTGGGTTT**GCTTAATGC**ATCTTGGTTCAACTC
AF222820/- TGCCT**G**ATTAAATGATCCCTGGGTTT**GCTTAATGC**ATCTTGGTTCAACTC

FIG. 10H

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NC_002022/-	CTTCCTTACACATGCATTGAGTTAGTTGTGGCAGTGCTACTATTTGCTAT
X17336/-	CTTCCTCACACATGCATTGAGATAGTTGTGGCAATGCTACTATTTGCTAT
M21850/-	CTTCCTCACACATGCACTGAAATAGTTGTGGCAATGCTACTATTTGCTAT
AF156457/-	CTTCCTCACACATG-----
M26087/-	CTTCCTTACACATGCACTAAAGTAGTTGTGGCAATGCTACTATTTGCTAT
M26088/-	CTTCCTCACACATGCACTGAAATAGTTGTGGCAATGCTACTATTTGCTAT
AF222820/-	C-----
NC_002022/-	CCATACTGTCCAAAAAGTACCTTGTTTCTACT-- (SEQ ID NO: 127)
X17336/-	CCATACTGTCCAAAAAGTACCTTGTTTCTACT-- (SEQ ID NO: 128)
M21850/-	CCATACTGTCCAAAAAGTACCTTGTTTCTACT-- (SEQ ID NO: 129)
AF156457/-	----- (SEQ ID NO: 130)
M26087/-	CCATACTGTCCAAAAAGTACCTTGTTTCTACT-- (SEQ ID NO: 131)
M26088/-	ACATCCTGTCCAAAAAGTACCTTGTTTCTACT-- (SEQ ID NO: 132)
AF222820/-	----- (SEQ ID NO: 133)

FIG. 10I

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PR8, MOI=0.01

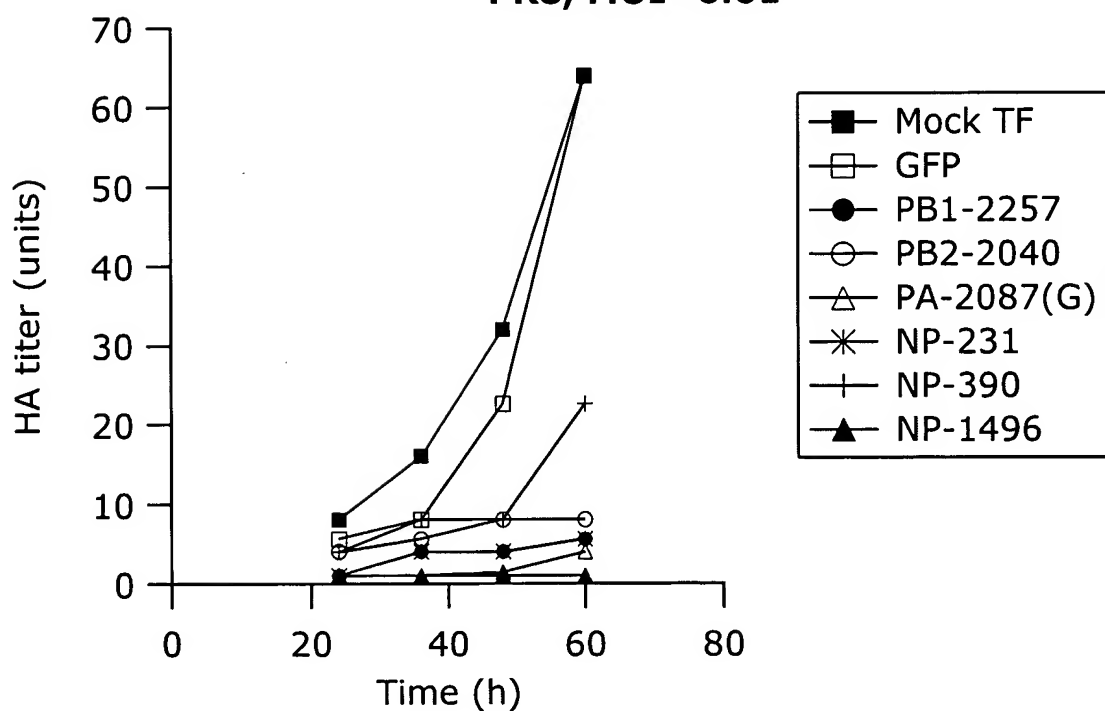


FIG. 11A

WSN, MOI=0.01

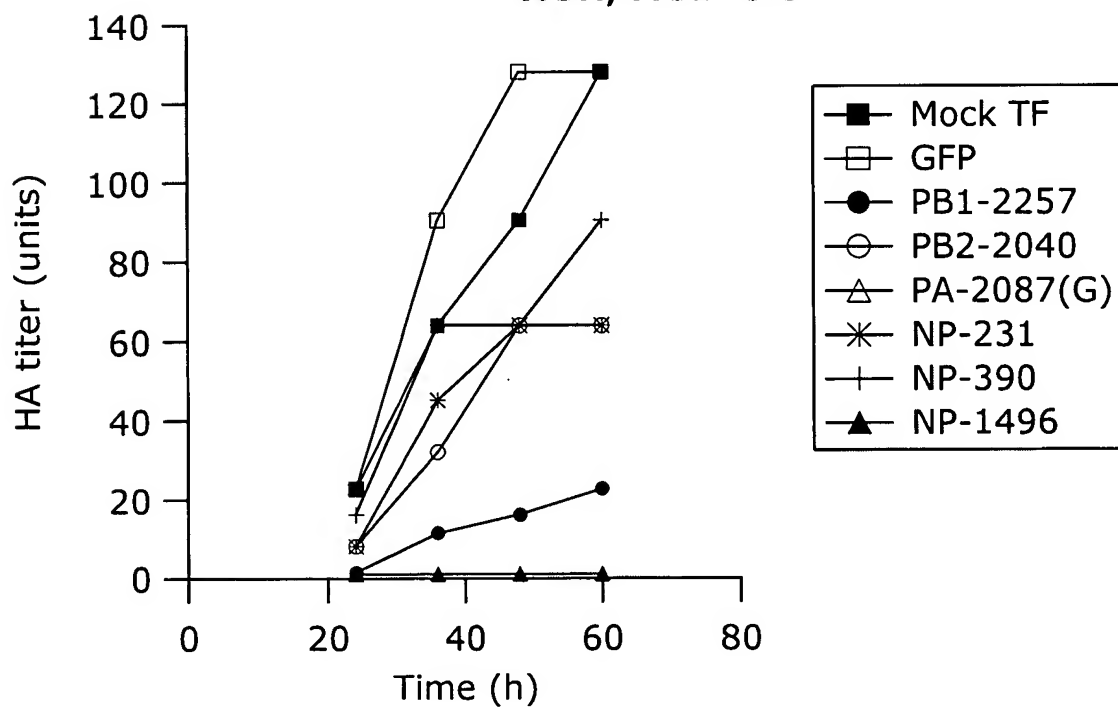
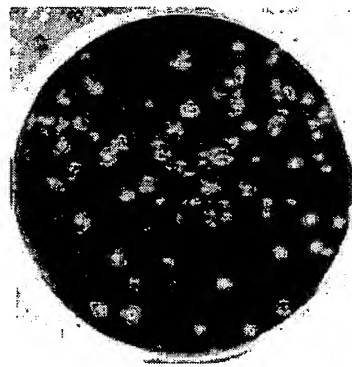


FIG. 11B

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Potent inhibition of influenza A viral replication by NP-1496



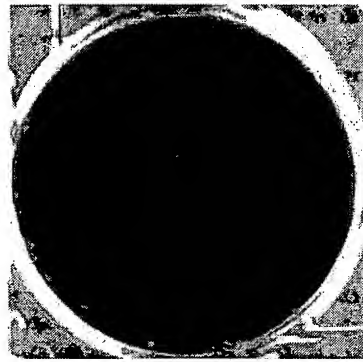
Mock transfection

MOI=0.001

6×10^5 PFU/ml

MOI=0.1

1×10^6 PFU/ml



NP-1496 siRNA
2.5 nmole

3×10^4

2×10^2

Fold difference

FIG. 11C

BEST AVAILABLE COPY

BEST AVAILABLE COPY

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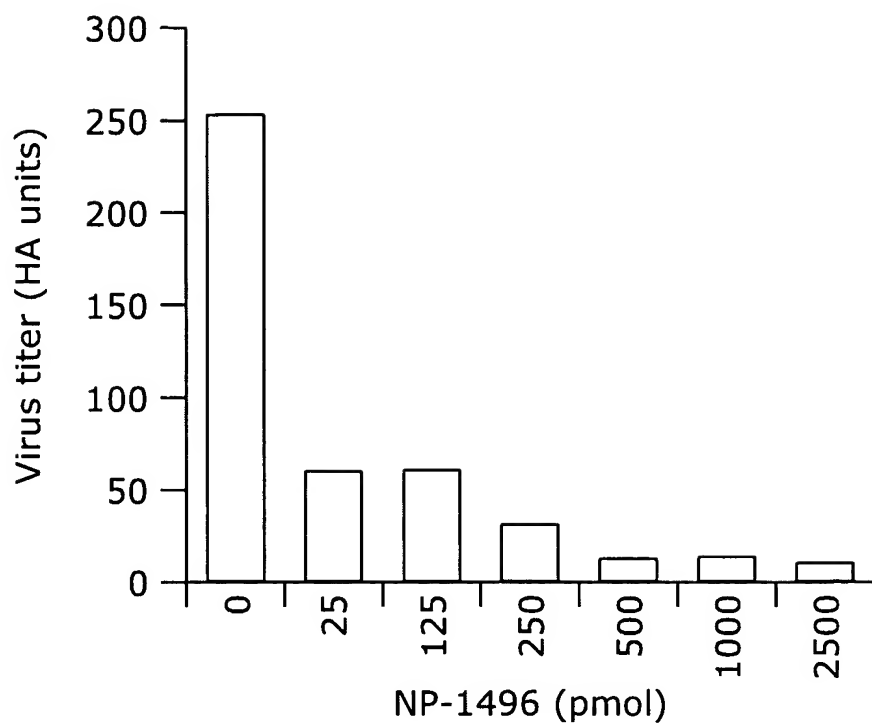


FIG. 11D

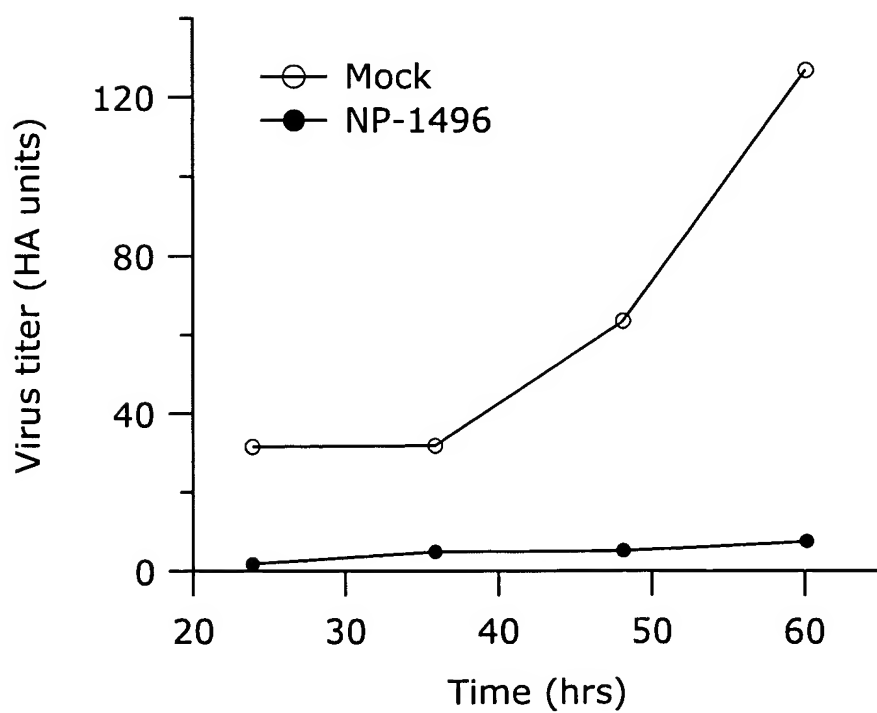


FIG. 11E

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PR8 (H1N1)	TCTCGGACGAAAAGGCAGCGAGCCCGATCGTGCCTTCCTTTGACATGAGT	
WSN (H1N1)	TCTCGGACGAAAAGGCAGCGAGCCCGATCGTGCCTTCCTTTGACATGAGT	
Lenn.(H2N2)	TCTCGGACTAAAAGGCAACGAACCCCATCGTGCCTTCCTTTGACATGAGT	
HK (H3N2)	TCTCGGACGAAAAGGCAGCGAACCCGATCGTGCCTTCCTTTGACATGAGT	
Memphis (H3N2)	TCTCAGACGAAAAGGCAACGAACCCGATCGTGCCTTCCTTTGACATGAGT	
HK (H5N1)	TCTCAGACGAAAAGGCAACGAACCCGATCGTGCCTTCCTTTGACATGAGT	
Duck (H10N7)	TCTCGGACGAAAAGGCAGCGAACCCGATCGTGCCTTCCTTTGACATGAGT	
Equine (H7N7)	TCTCGGACGAAAAGGCAACGAACCCGATCGTGCCTTCCTTTGACATGAGC	
Whale (H13N2)	TCTCAGACGAAAAGGCAACGAACCCGATCGTGCCTTCCTTTGACATGAGT	
Chicken (H9N2)	TCTCGGACGAAAAGGCAACGAACCCGATCGTGCCTTCCTTTGACATGAGT	
Swine (H4N6)	TCTCGGACGAAAAGGCAACGAACCCGATCGTGCCTTCCTTTGACATGAGT	
PR8 (H1N1)	AATGAAGGATCTTATTTCTTCGGAGACAATGCAGAGGAGTACGACAATTA	(SEQ ID
NO: 134)		
WSN (H1N1)	AATGAAGGATCTTATTTCTTCGGAGACAATGCAGAGGAGTACGACAATTA	(SEQ ID
NO: 135)		
Lenn.(H2N2)	AATGAAGGATCTTATTTCTTCGGAGACAATGCAGAGGAGTACGACAATTA	(SEQ ID
NO: 136)		
HK (H3N2)	AATGAAGGATCTTATTTCTTCGGAGACAATGCAGAGGAGTACGACAATTA	(SEQ ID
NO: 137)		
Memphis (H3N2)	AATGAAGGATCTTATTTCTTCGGAGACAATGCAGAGGAGTACGACAATTA	(SEQ ID
NO: 138)		
HK (H5N1)	AATGAAGGATCTTATTTCTTCGGAGACAATGCAGAGGAATATGACAATTG	(SEQ ID
NO: 139)		
Duck (H10N7)	AACGAGGGATCTTATTTCTTCGGAGACAATGCAGAGGAATATGACAATTA	(SEQ ID
NO: 140)		
Equine (H7N7)	AATGAAGGCTCTTATTTCTTCGGAGACAATGCTGAGGAGTTTGACAGTTA	(SEQ ID
NO: 141)		
Whale (H13N2)	AATGAGGGATCTTATTTCTTCGGAGACAATGCTGAGGAGTATGACAATTG	(SEQ ID
NO: 142)		
Chicken (H9N2)	AATGAAGGATCTTATTTCTTCGGAGACAATGCATAGGAGTATGACAATTA	(SEQ ID
NO: 143)		
Swine (H4N6)	AACGAAGGGTCTTATTTCTTCGGAGACAATGCAGAGGAATATGACAATTA	(SEQ ID
NO: 144)		

FIG. 12

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Summary of the inhibitory effect of siRNAs on influenza A virus production

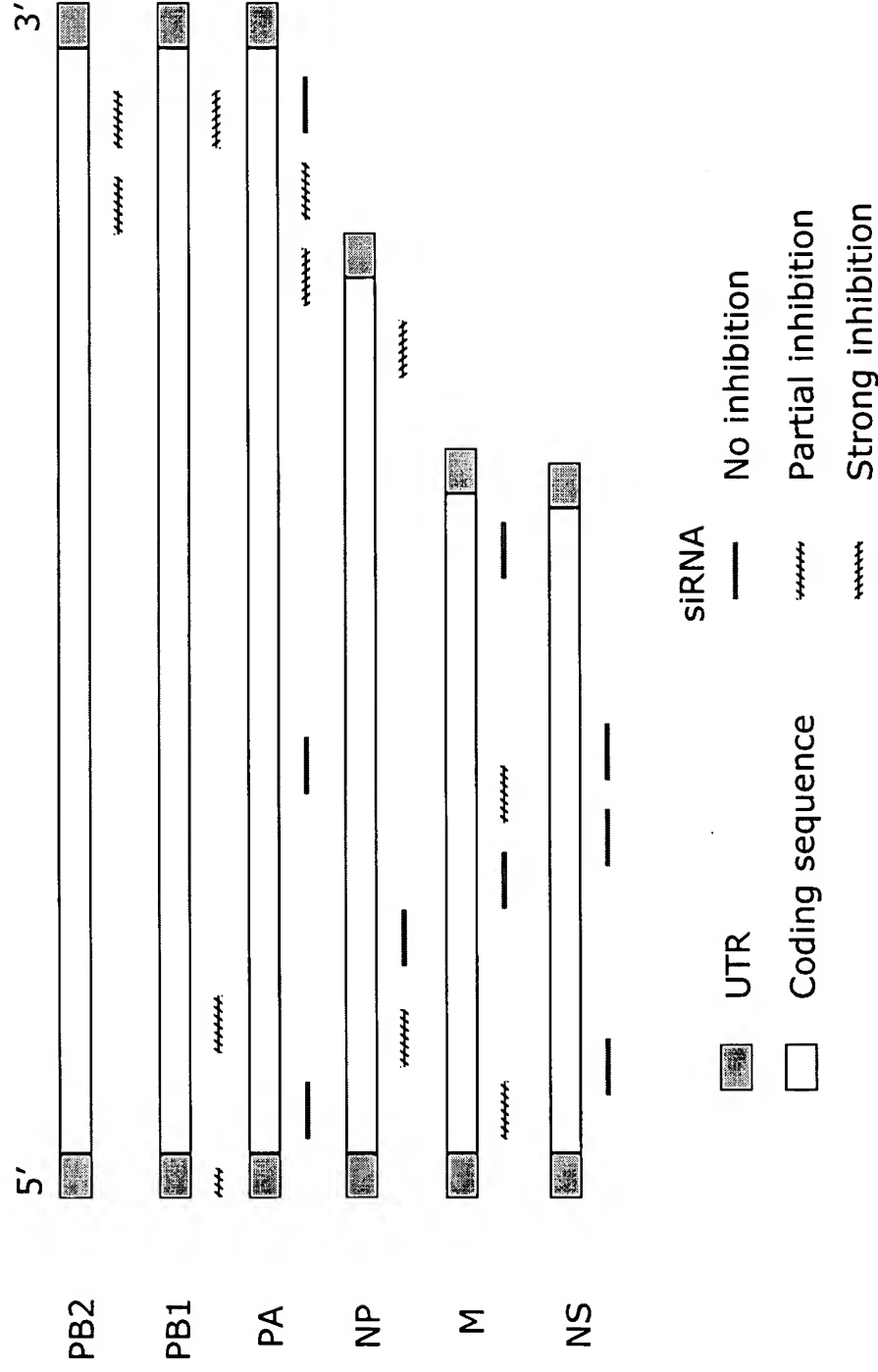


FIG. 13

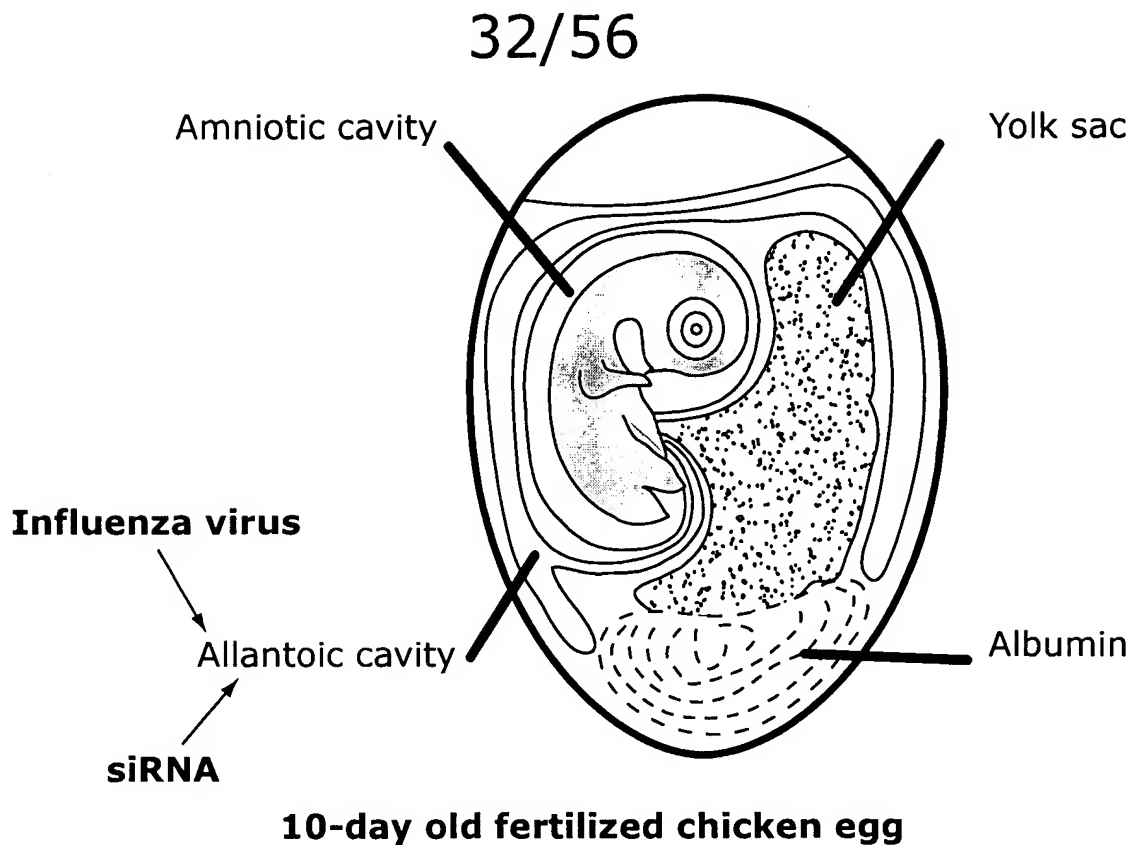


FIG. 14A

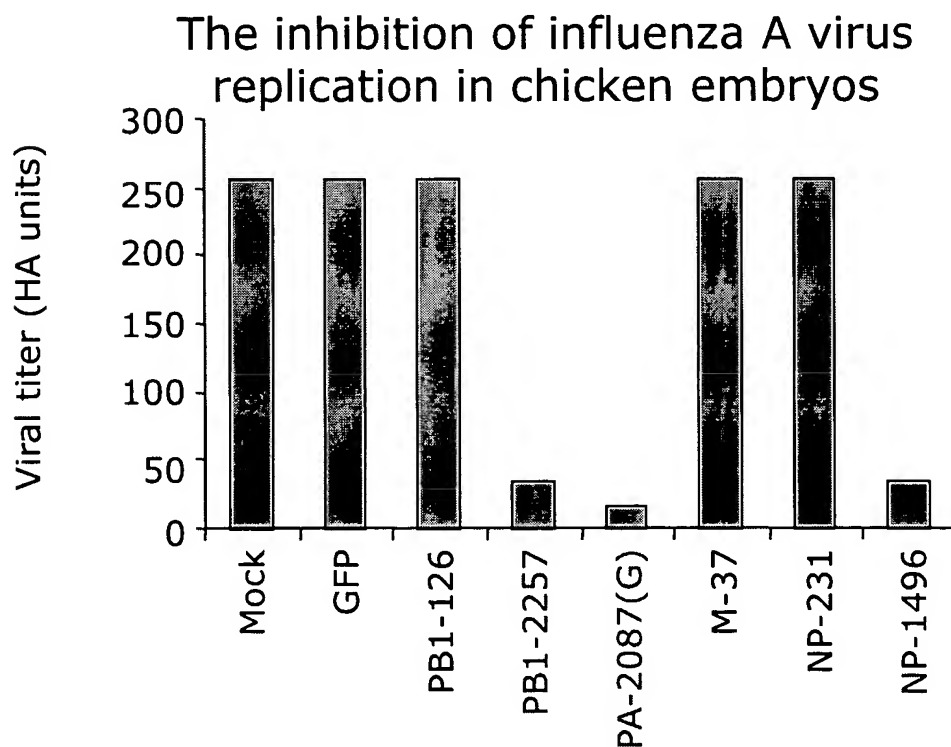


FIG. 14B

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Nucleocapsid protein
RNA-binding protein pivotal to virus replication

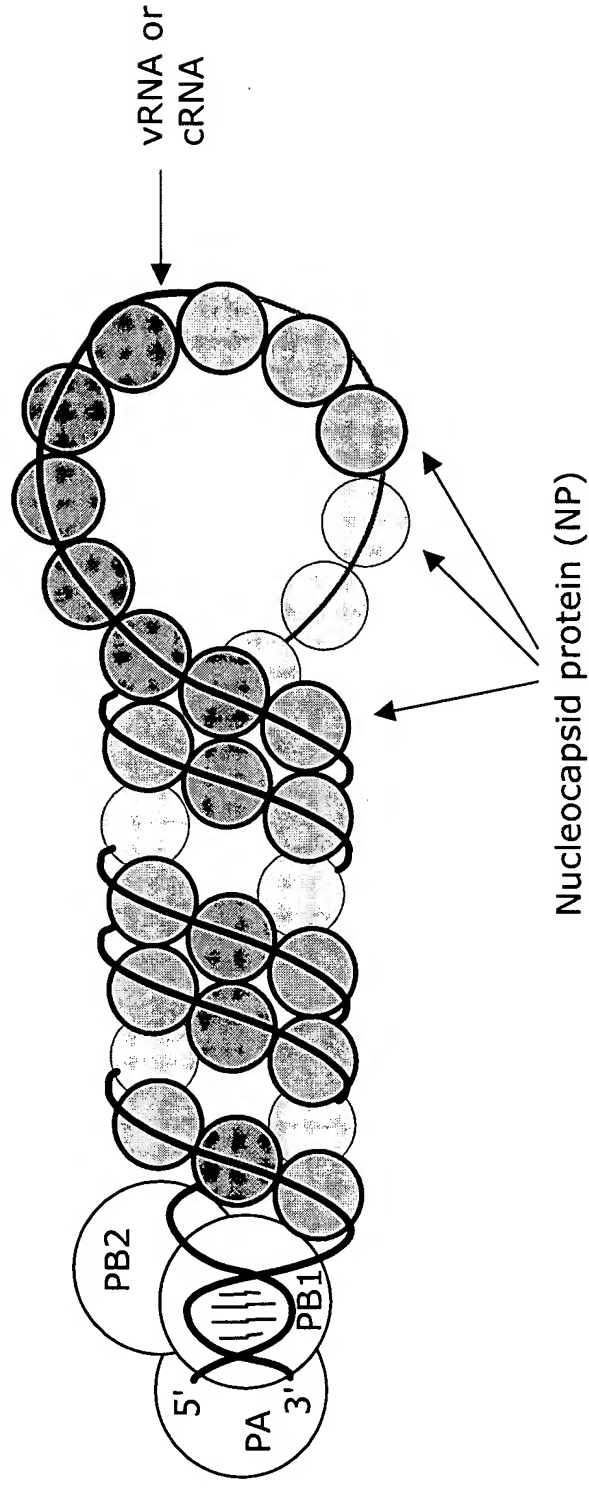


FIG. 15

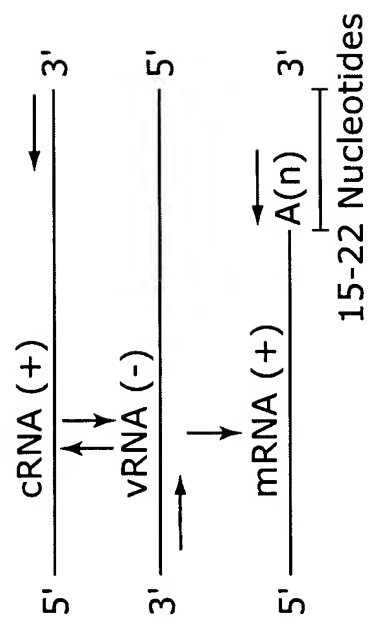


FIG. 16A

Diagram of Influenza Virus virion RNA (vRNA), mRNA and full-length cRNA or template RNA

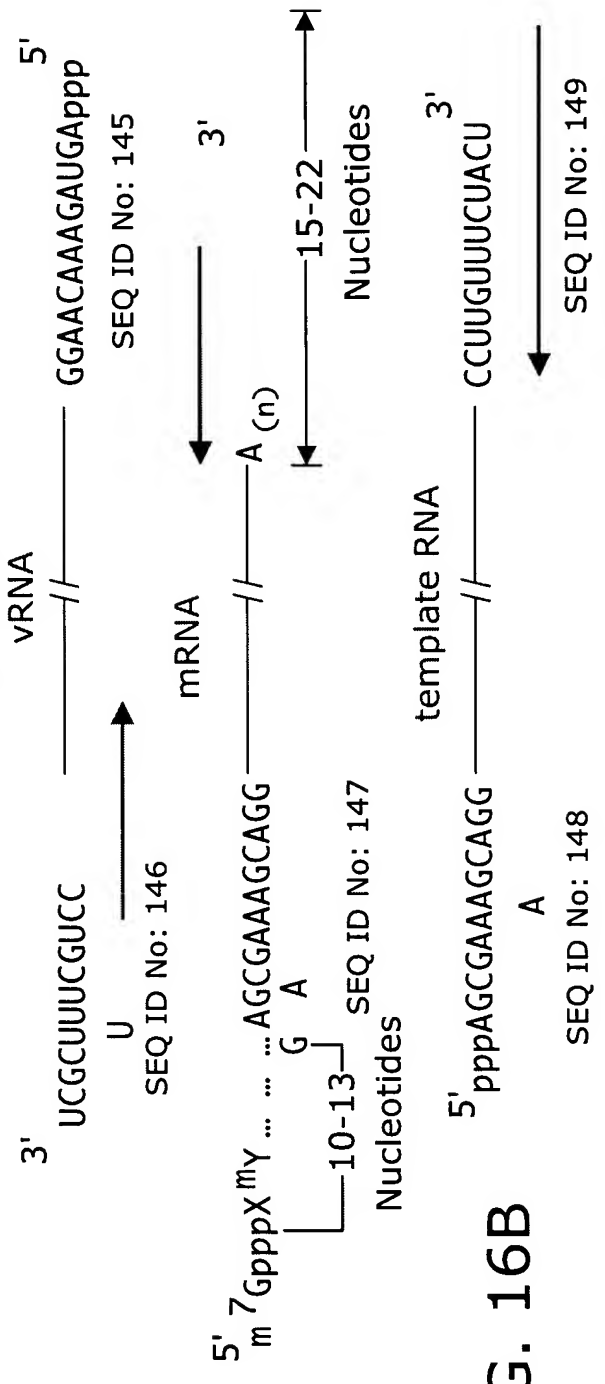


FIG. 16B

NP siRNA interferes with virus replication at a very early stage

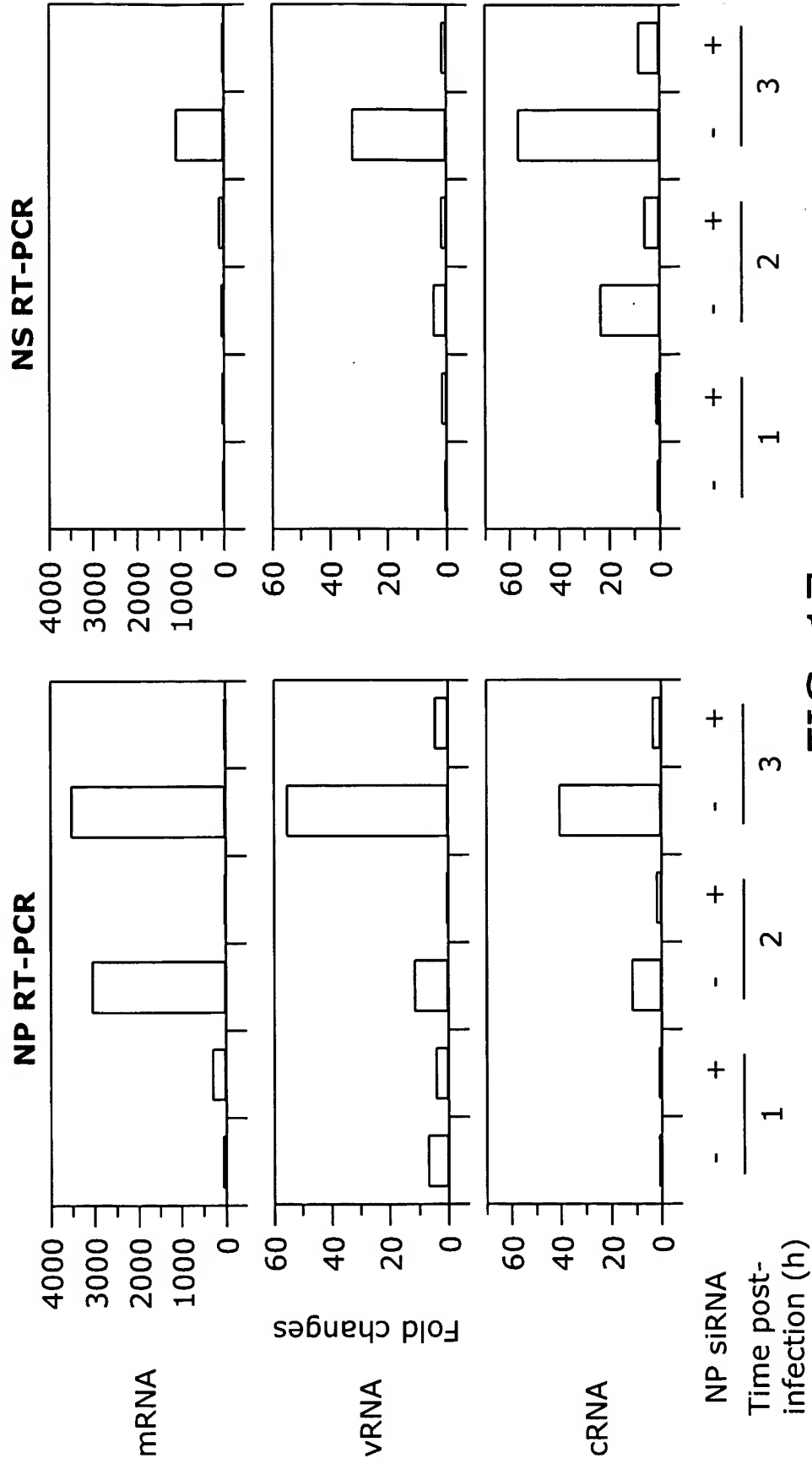


FIG. 17

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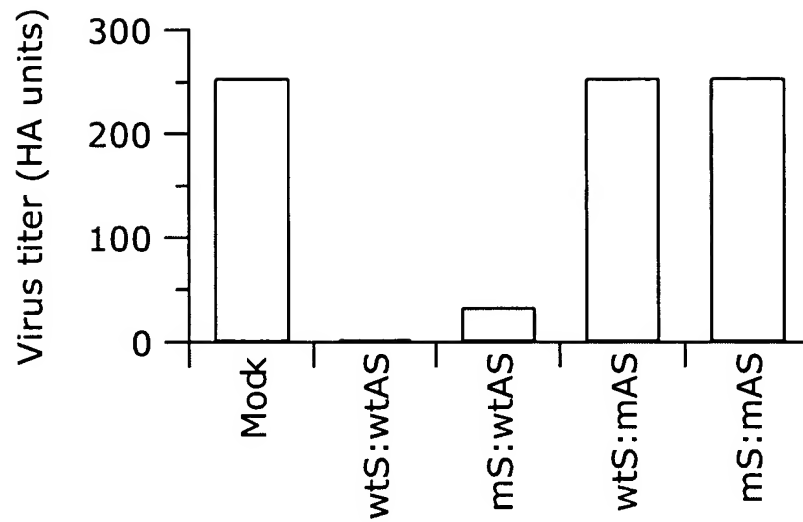


FIG. 18A

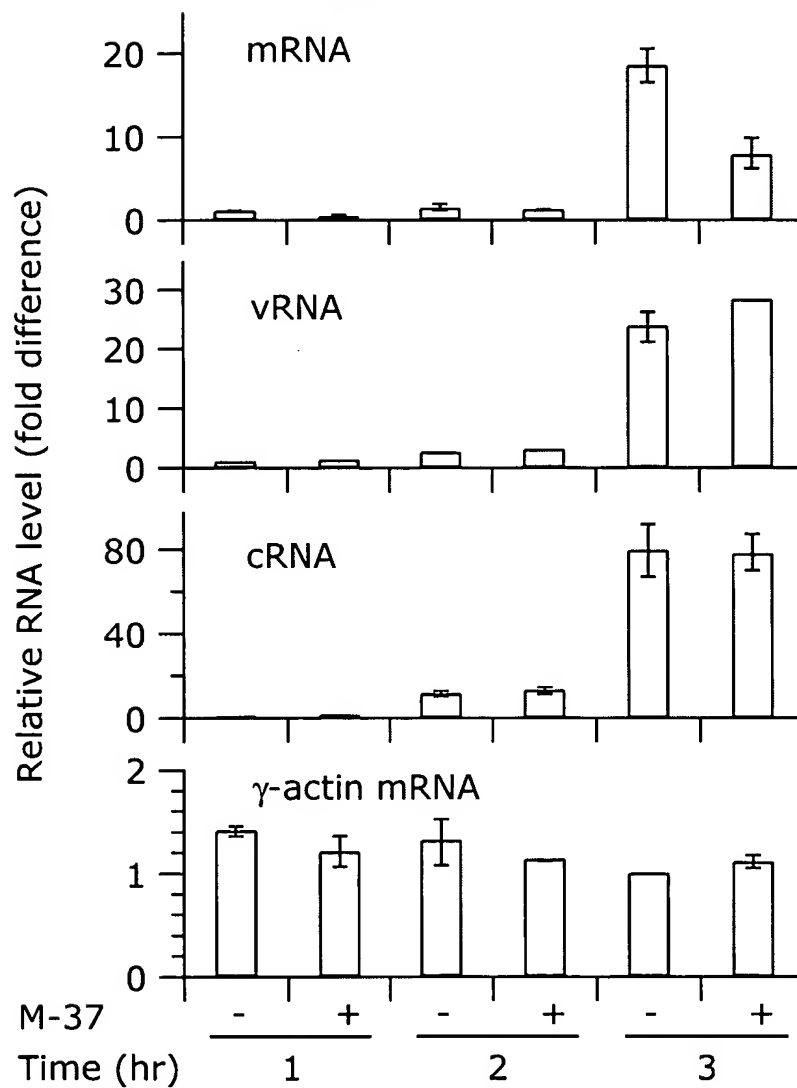


FIG. 18B

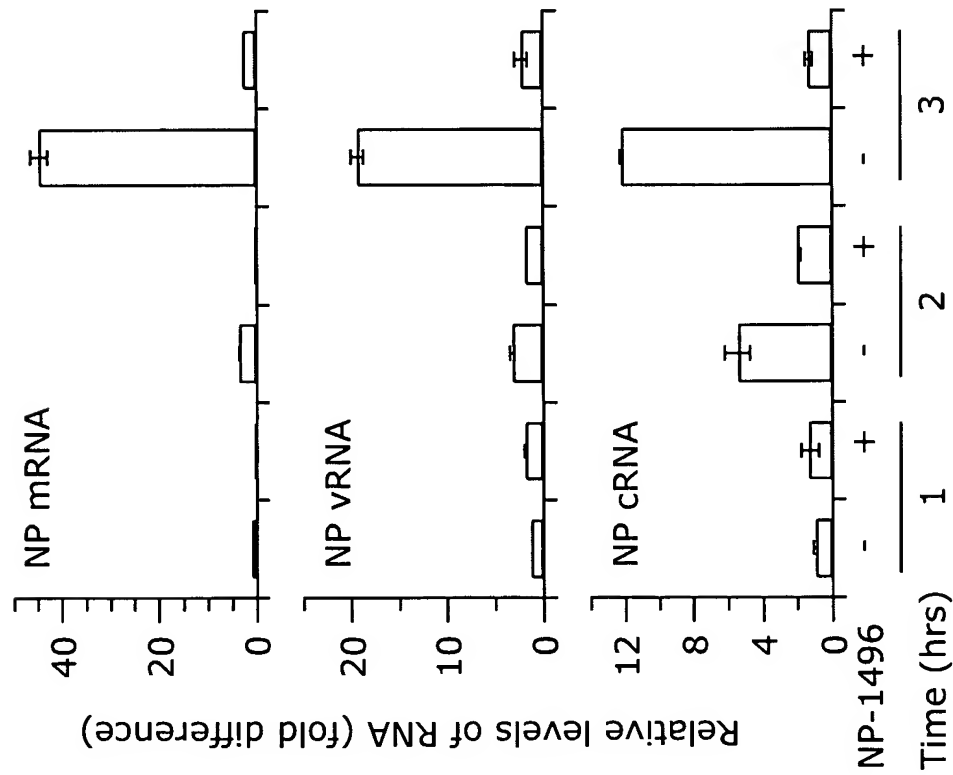


FIG. 19A

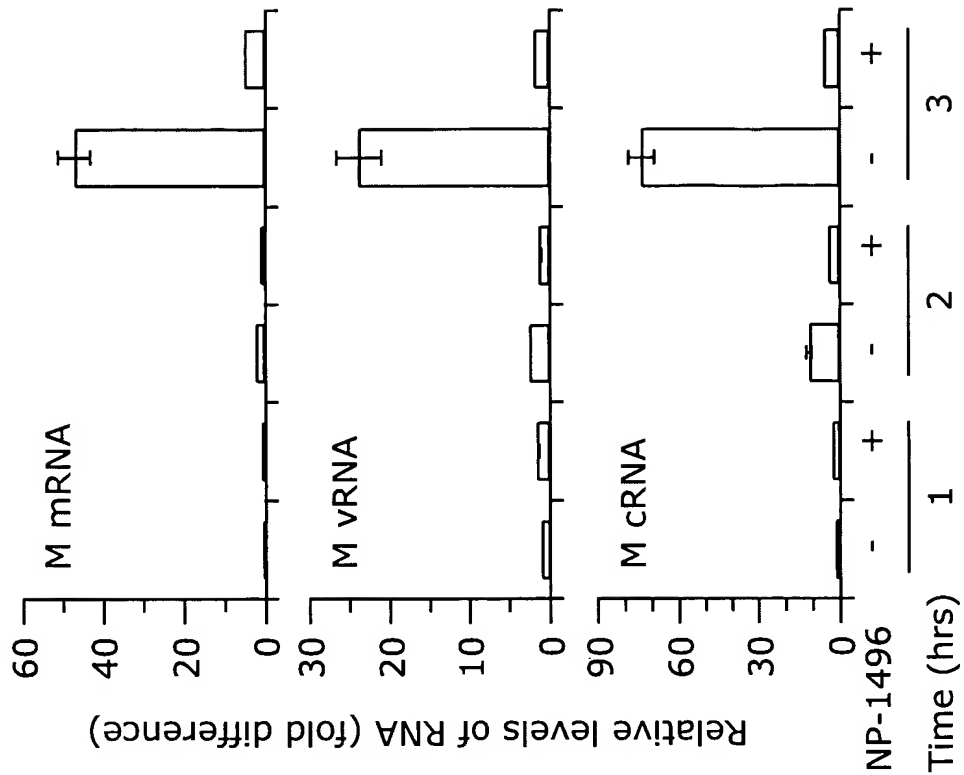


FIG. 19B

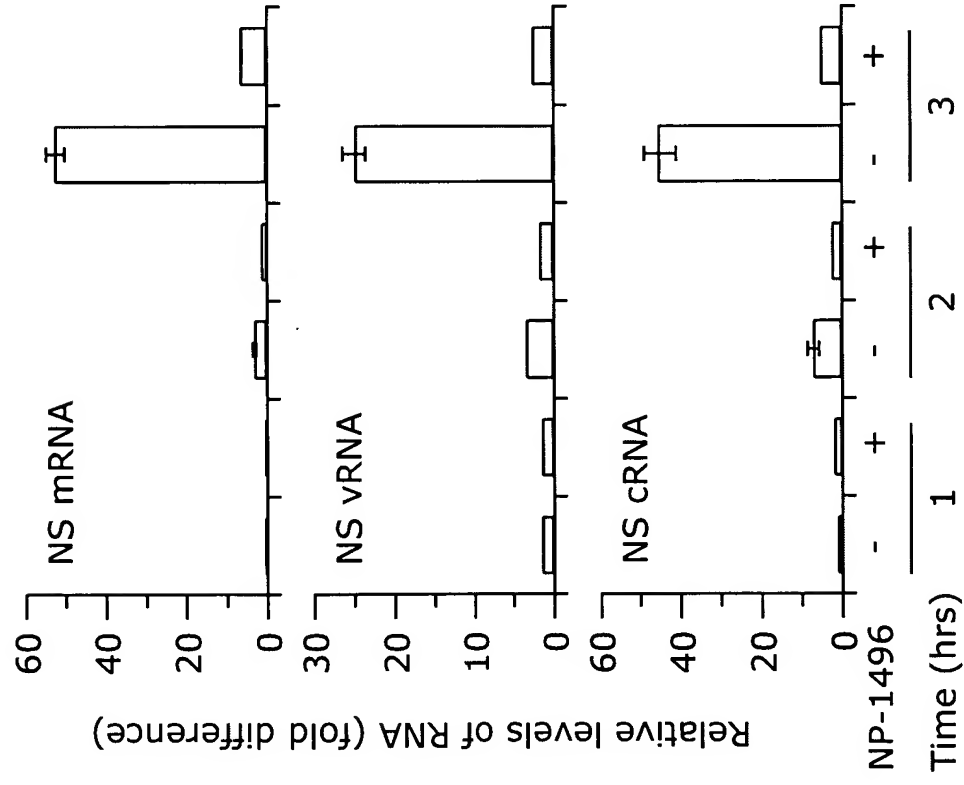


FIG. 19C

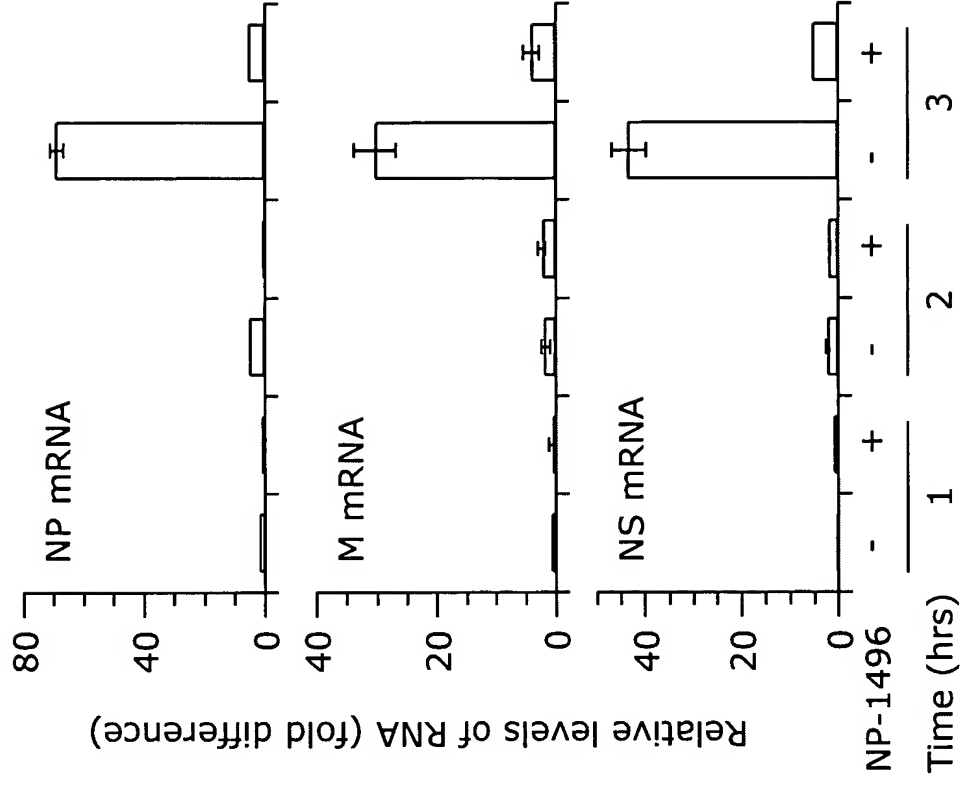


FIG. 19D

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NP and PA siRNA interfere with viral mRNA transcription

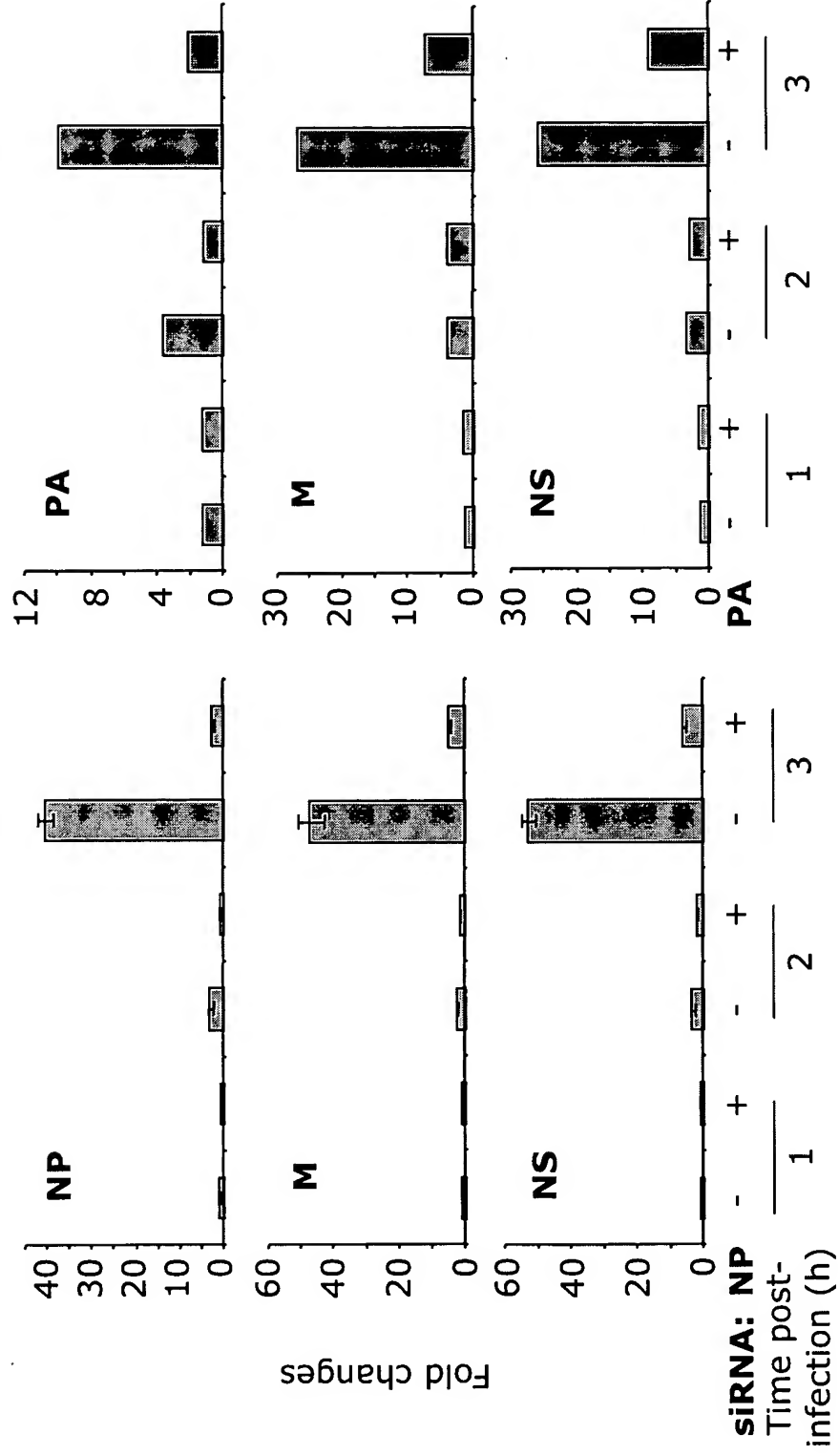


FIG. 19E

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NP and PA siRNA interfere with viral vRNA replication

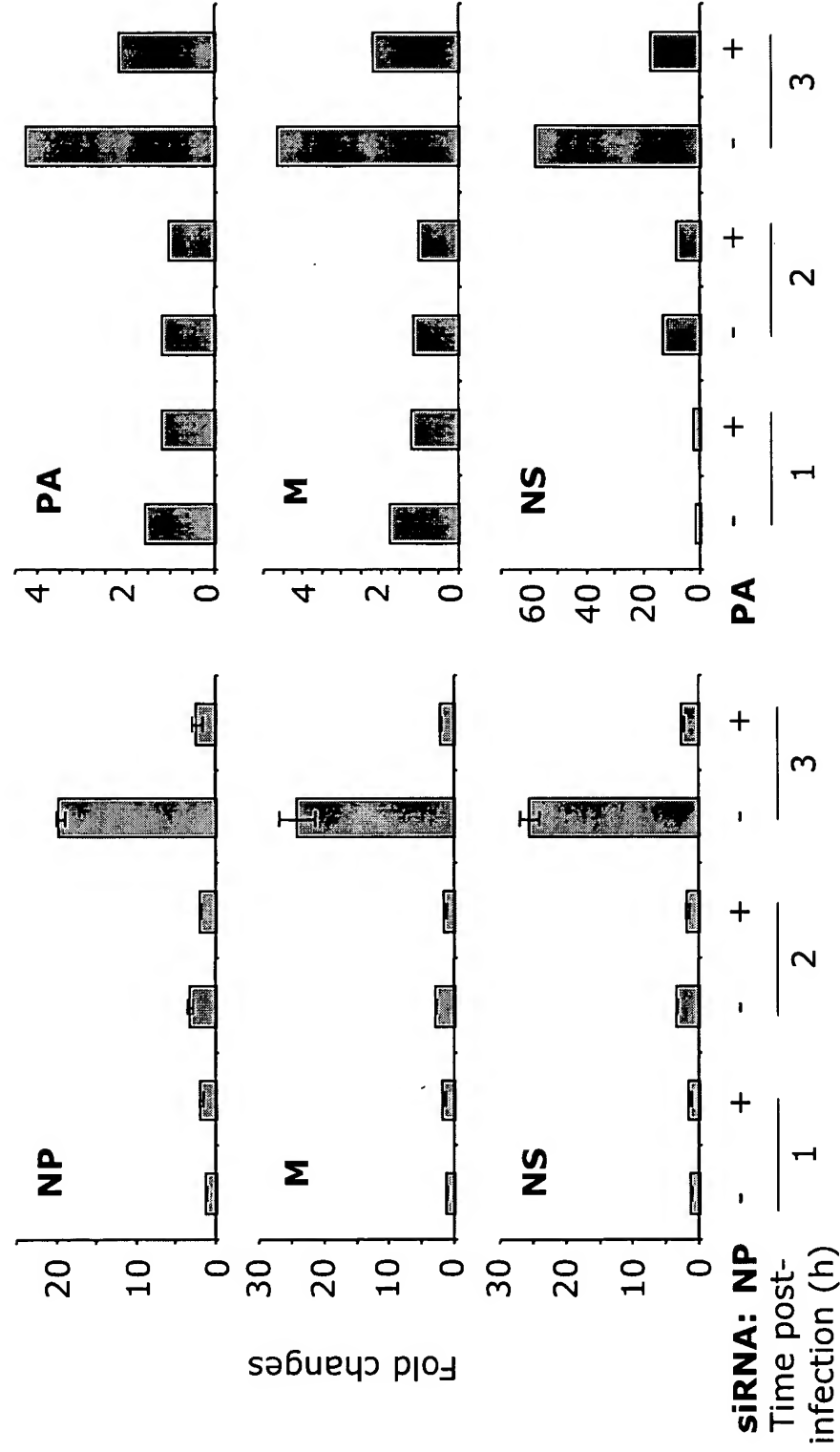


FIG. 19F

NP and PA siRNA interfere with viral cRNA replication

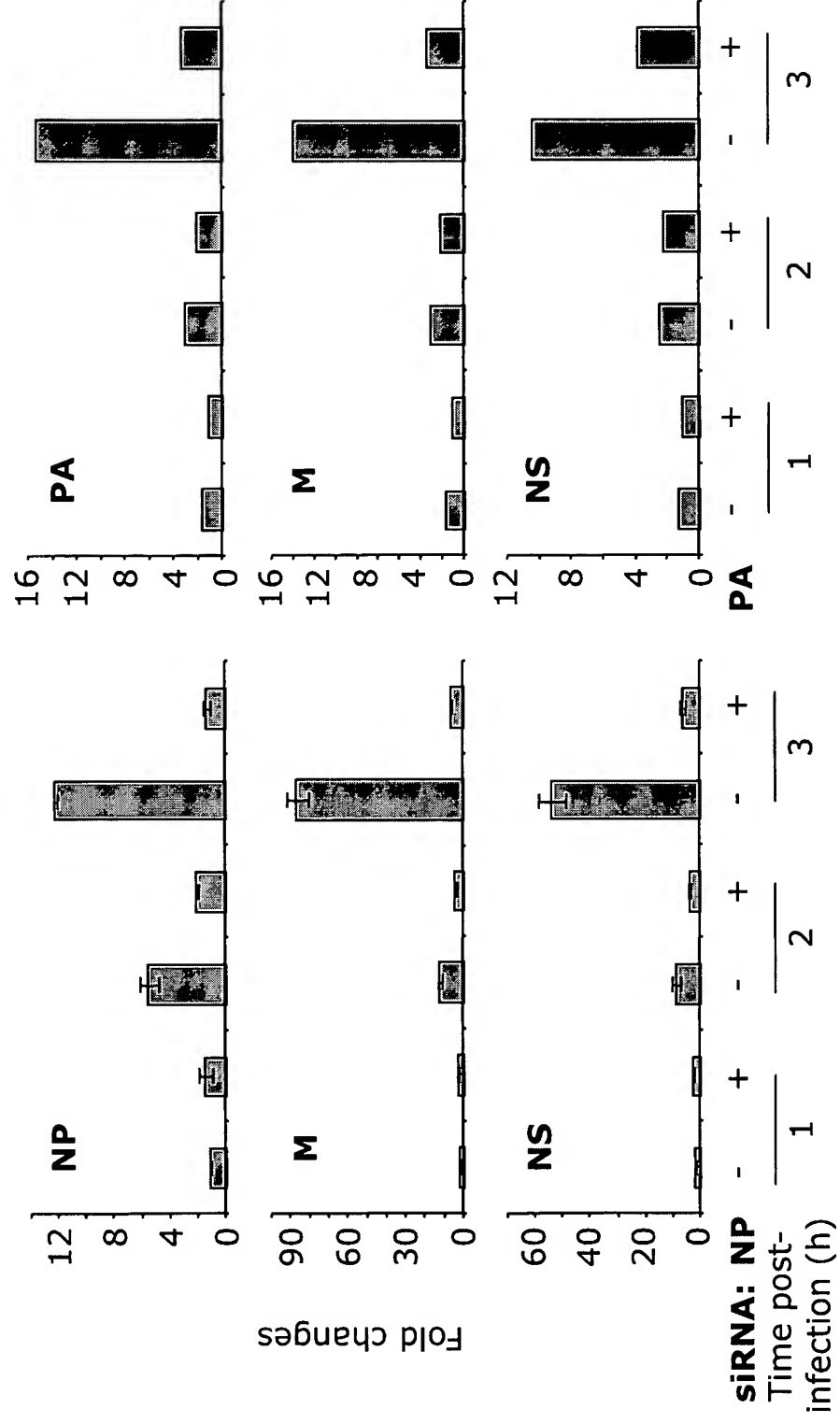


FIG. 19G

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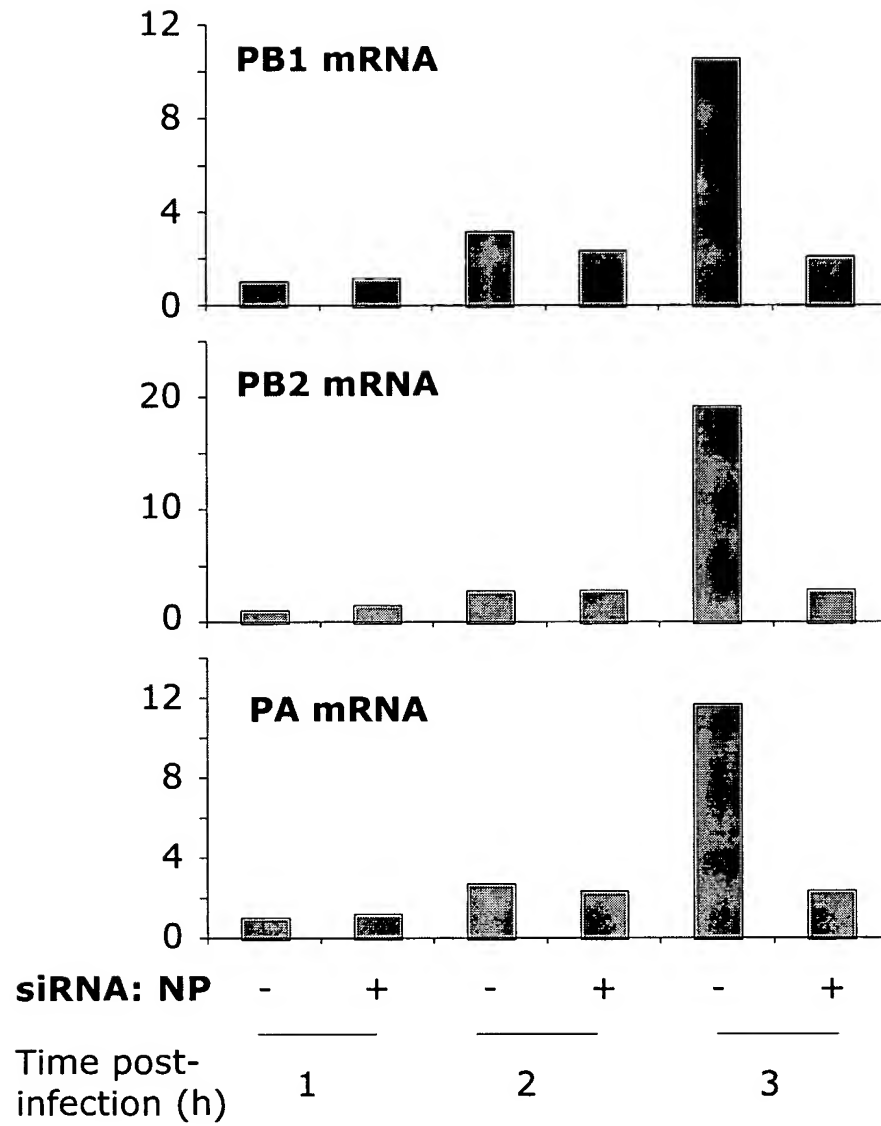


FIG. 19H

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SEQ ID No: 150

CD8-61

5'- gcuacaacuacuacaugacdttdt -3'
3'- dtdtcgauguugaugauguacug -5'

SEQ ID No: 151

CD8-61F

5'-cggggg^ugcuacaacuacuacaugac^g c a g
3'-gucccc^{uu}cgauguugaugauguacug^a c c u

SEQ ID No: 152

FIG. 20A

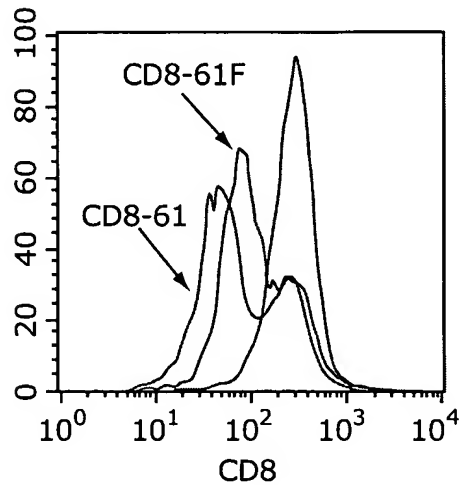


FIG. 20B

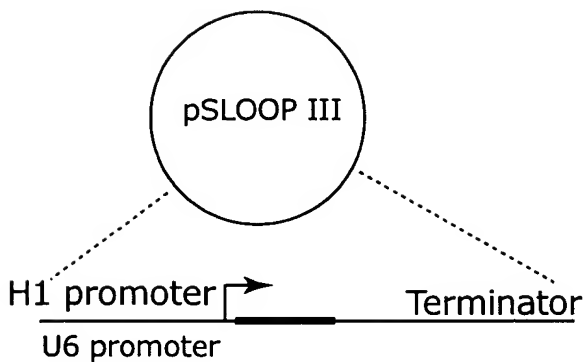


FIG. 20C

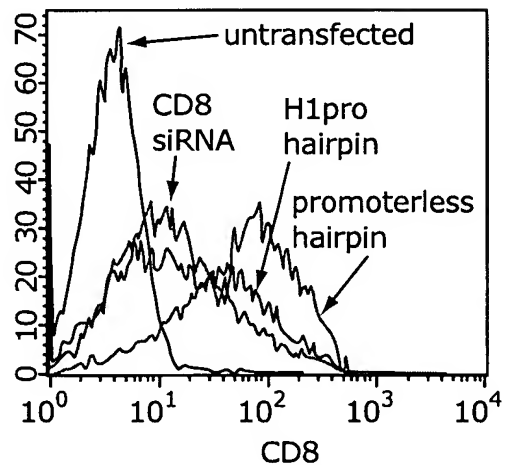


FIG. 20D

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NP-1496	ggaucuuuuuucucggagdttdt dtdtccuagaauaagaagccuc	SEQ ID NO: 153 SEQ ID NO: 154
NP-1496H	^u cgggg ^g ^{ca} ggaucuuuuuucucggag ^g guccc ^{uu} ccuagaauaagaagccuc ^a ^{cc} ^u	SEQ ID NO: 155
GFP-949	ugcgucuccuggacguagccdttdt dtdtaccgaggaaccugcaucgg	SEQ ID NO: 156 SEQ ID NO: 157
GFP-949H	^u cgggg ^u ^{ca} gucgucuccuggacguagcc ^g guccc ^{uu} accgaggaaccugcaucgg ^a ^{cc} ^u	SEQ ID NO: 158

FIG. 21A

NP-1496H	^u cgggg ^u ^{ca} ggaucuuuuuucucggag ^g guccc ^{uu} ccuagaauaagaagccuc ^a ^{cc} ^u	GFP-949H	ugcgucuccuggacguagcc ^g ^{ca} g acgcgaggaaccugcaucgg ^a ^{cc} ^u	SEQ ID NO: 159
GFP-949H	^u cgggg ^u ^{ca} gucgucuccuggacguagcc ^g guccc ^{uu} accgaggaaccugcaucgg ^a ^{cc} ^u	NP-1496H	ggaucuuuuuucucggag ^g ^{ca} g ccuagaauaagaagccuc ^a ^{cc} ^u	SEQ ID NO: 160

FIG. 21B

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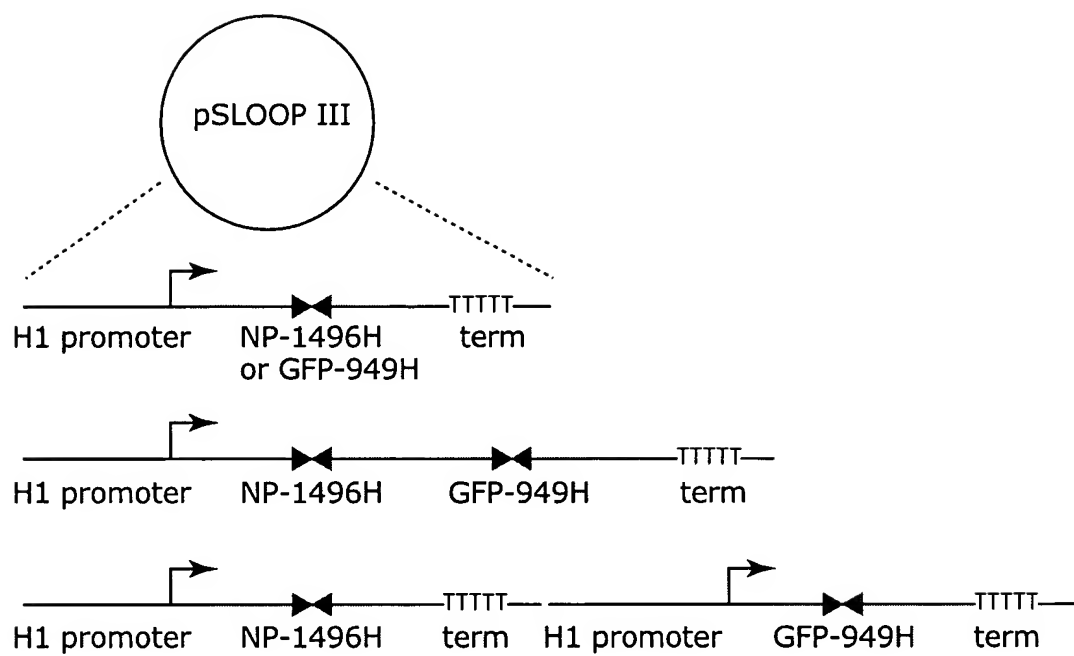


FIG. 21C

siRNA prevents influenza virus production in mice

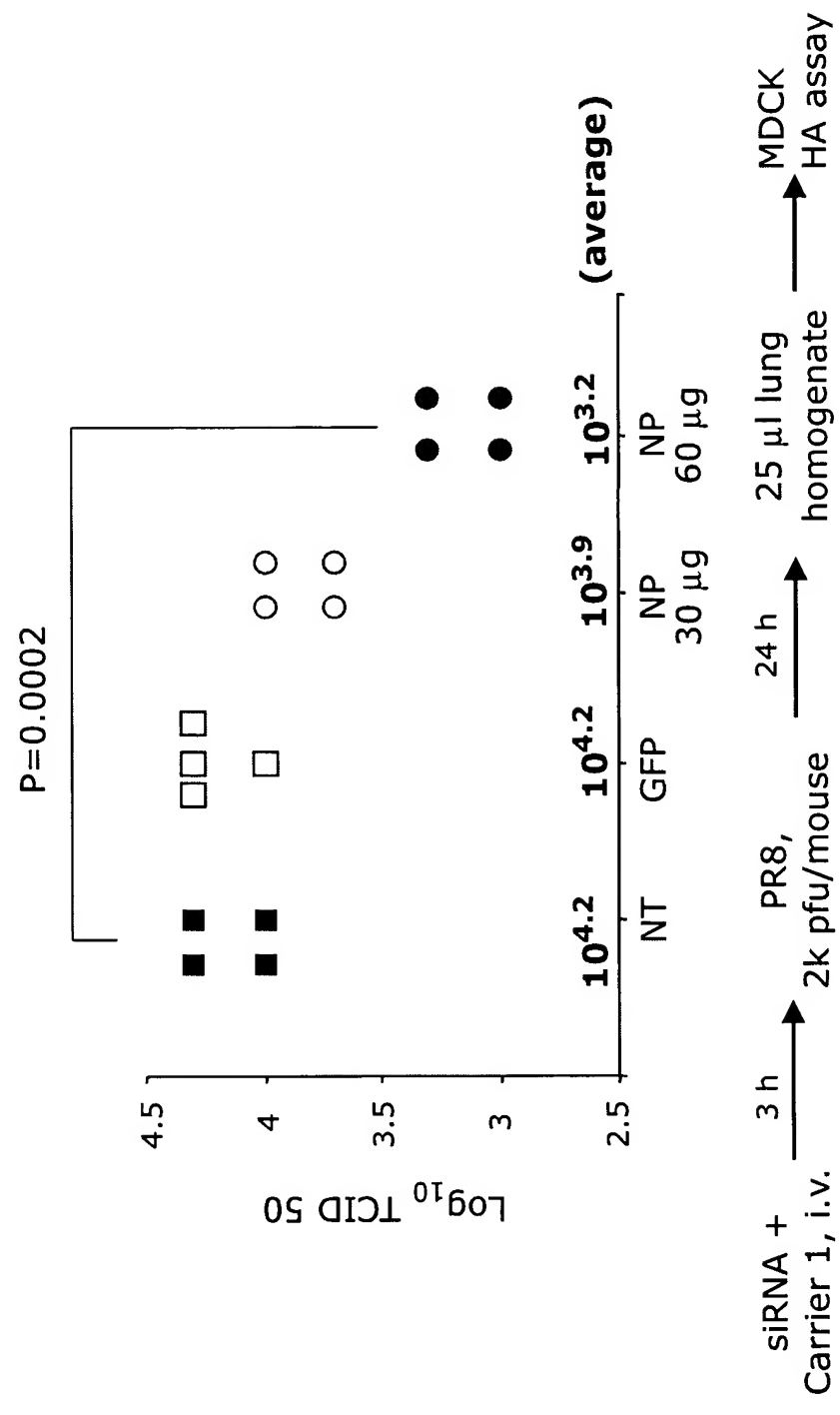


FIG. 22A

siRNA prevents influenza virus production in vivo

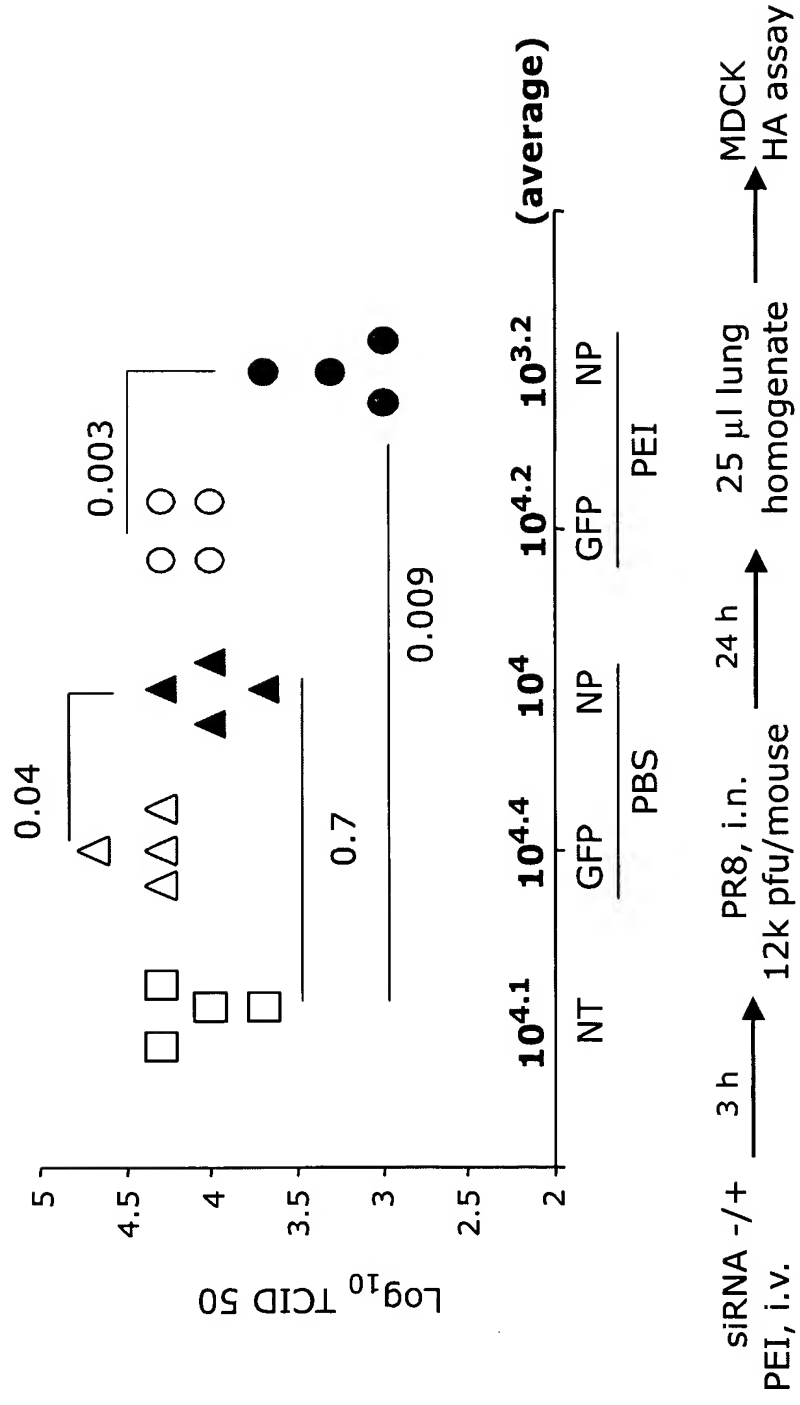


FIG. 22C

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Additive/synergistic effect of siRNA against influenza virus in mice

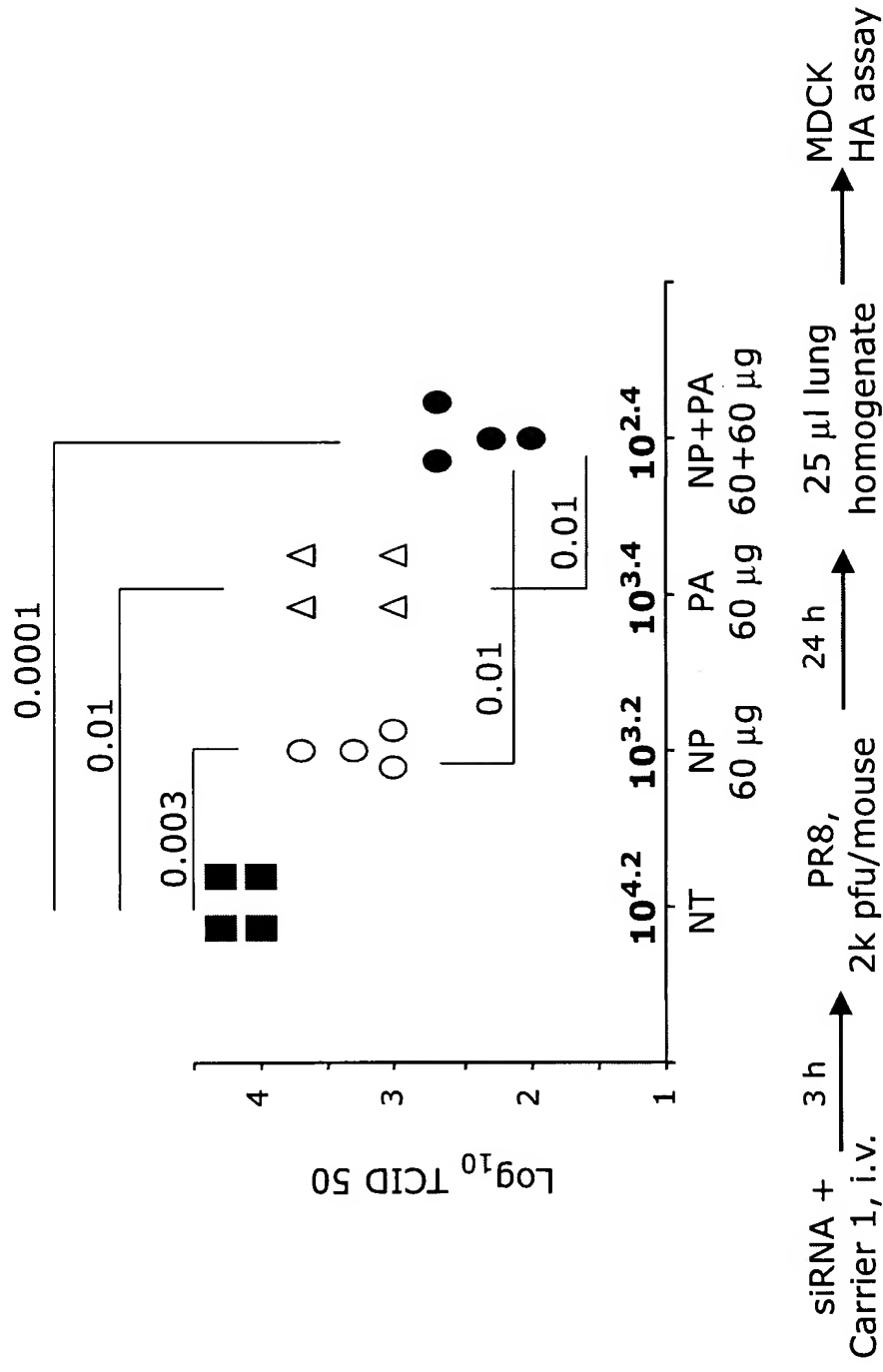


FIG. 23

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siRNA inhibits influenza virus production in infected mice

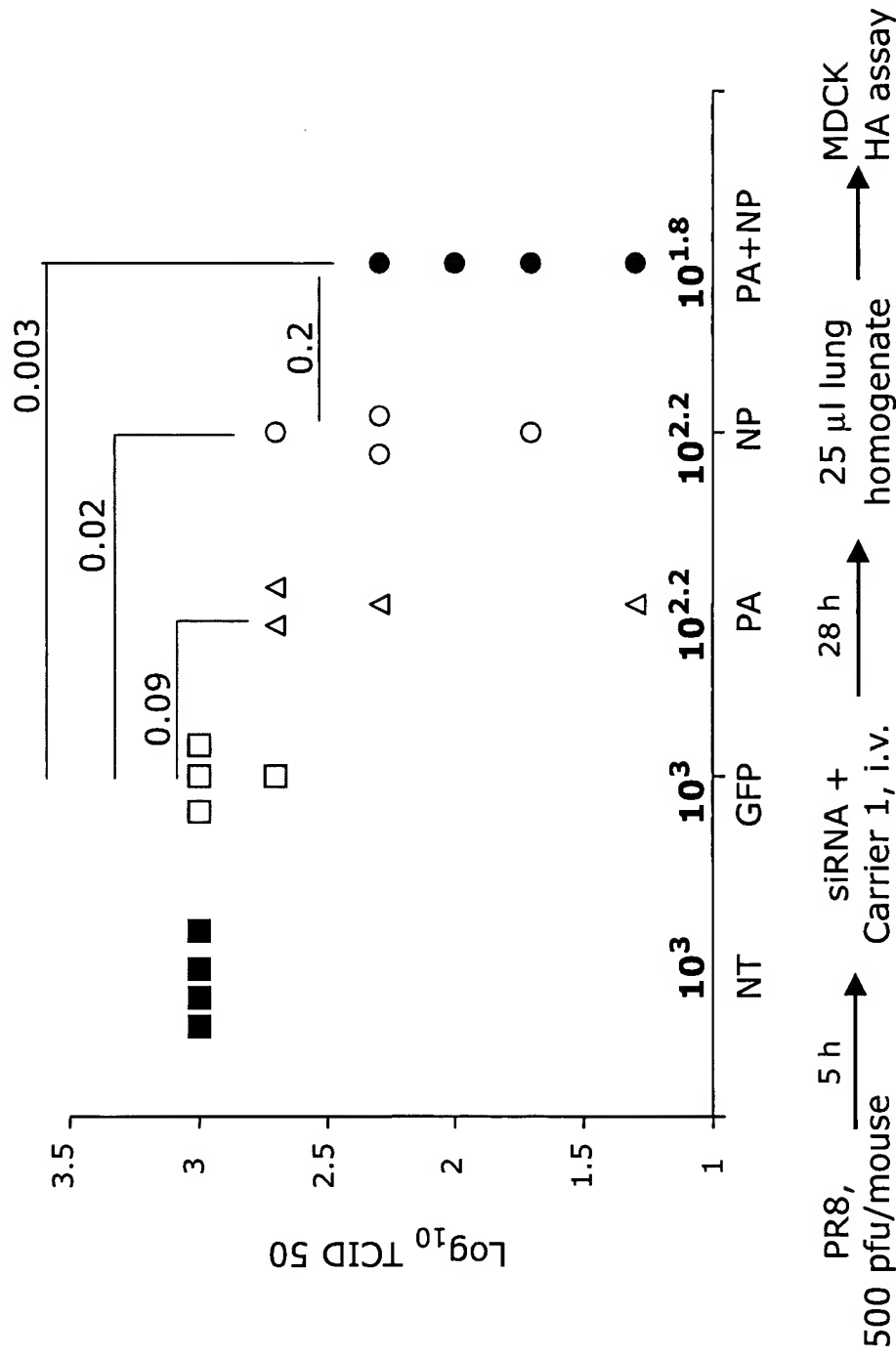


FIG. 24

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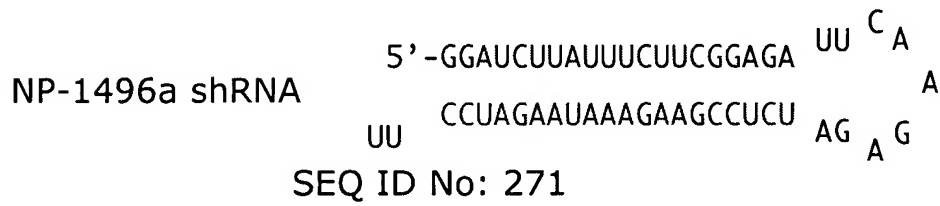
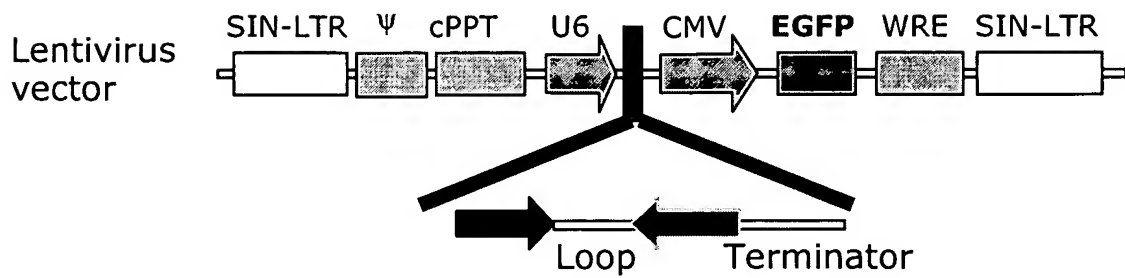


FIG. 25A

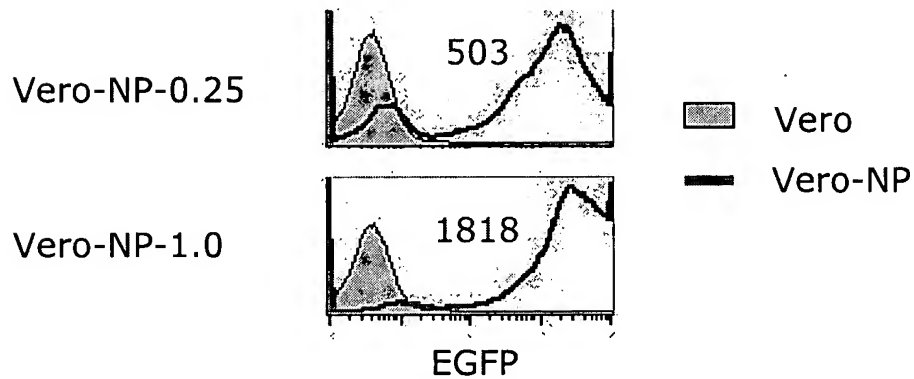


FIG. 25B

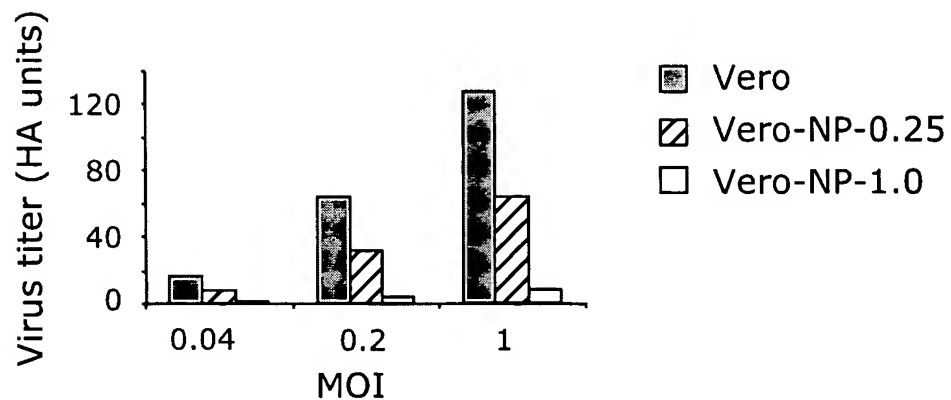


FIG. 25C

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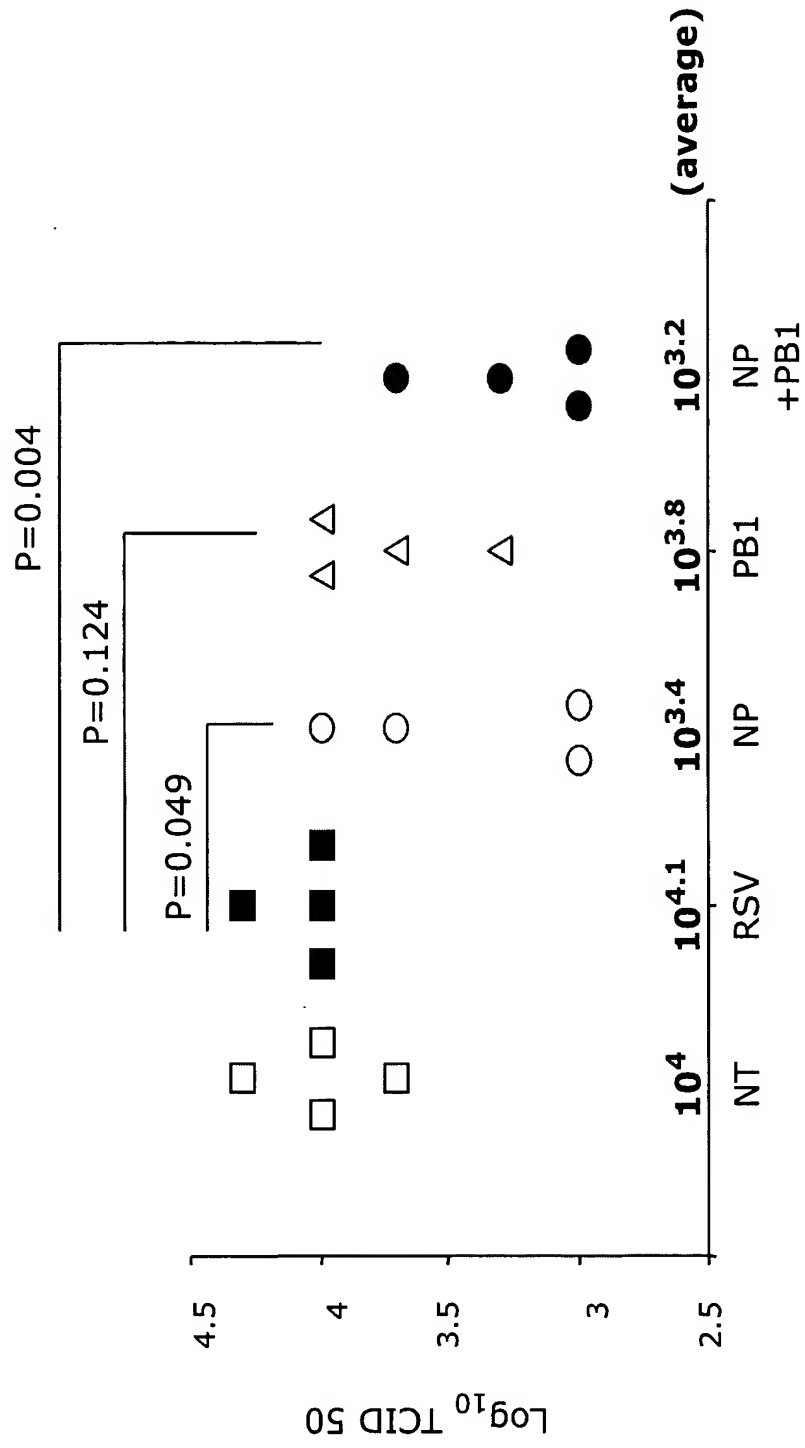


FIG. 26

Electrophoretic retardation of siRNA with poly-L-lysine

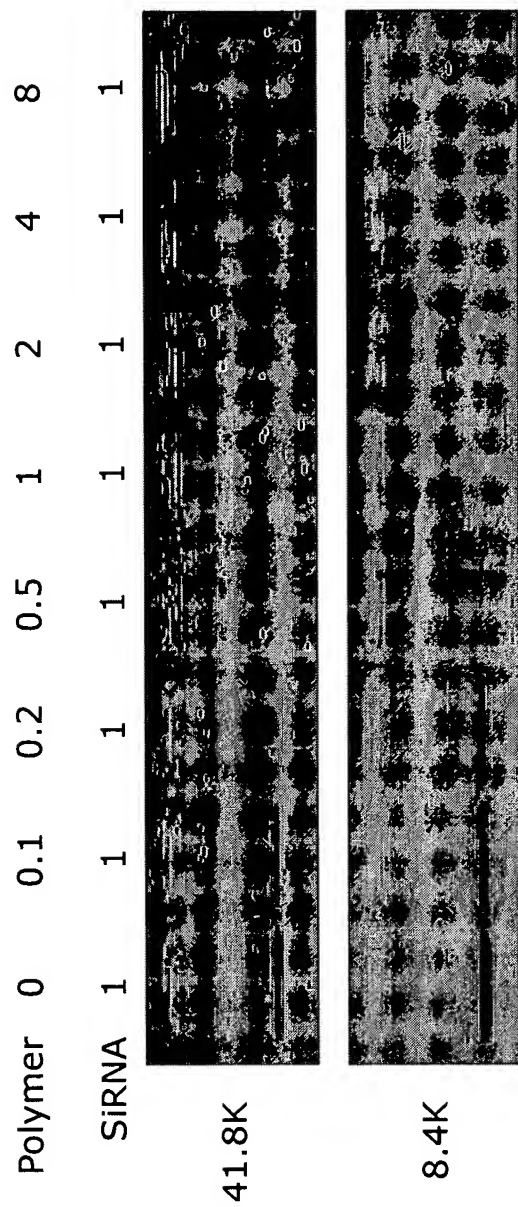


FIG. 27A

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Electrophoretic retardation of siRNA with poly-L-arginine

PLA	0	0.02	0.06	0.17	0.5	1.5	4.5	13.5	43.5
SiRNA	1	1	1	1	1	1	1	1	1

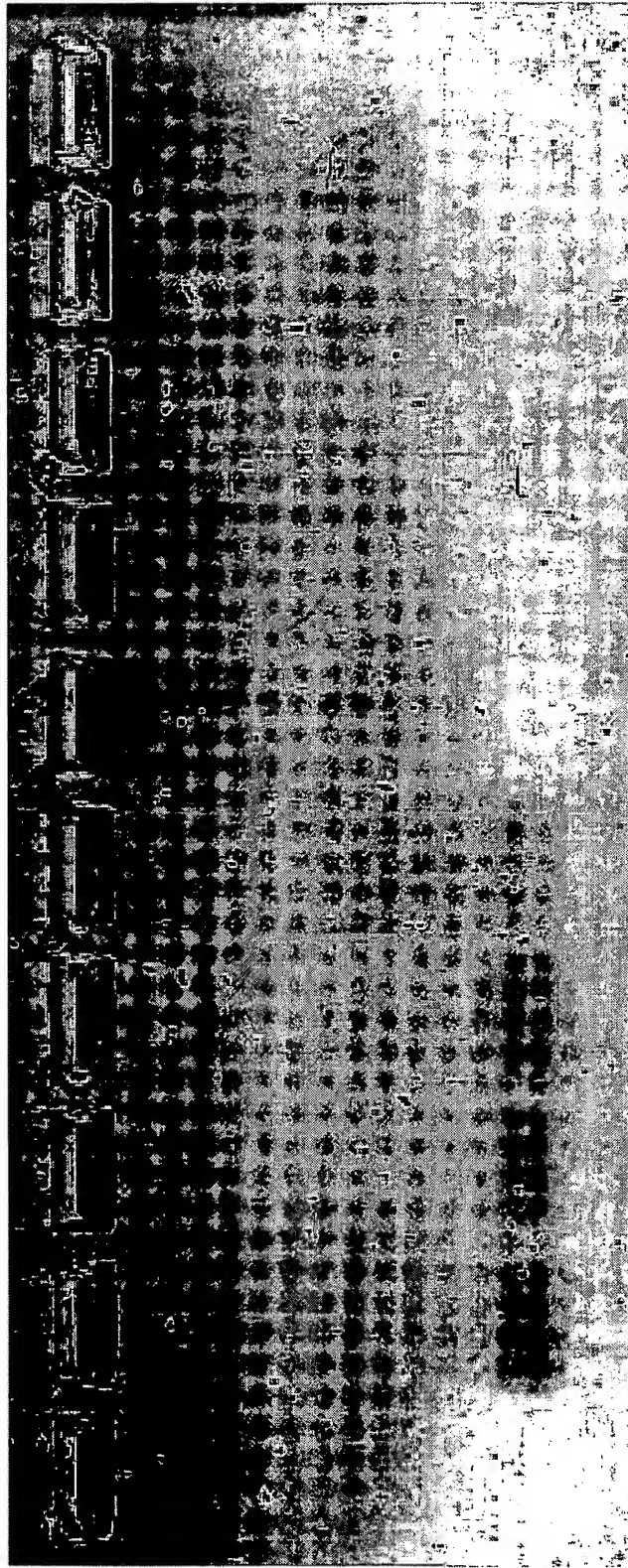


FIG. 27B

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Comparison of poly-L-lysine with
different molecular weights

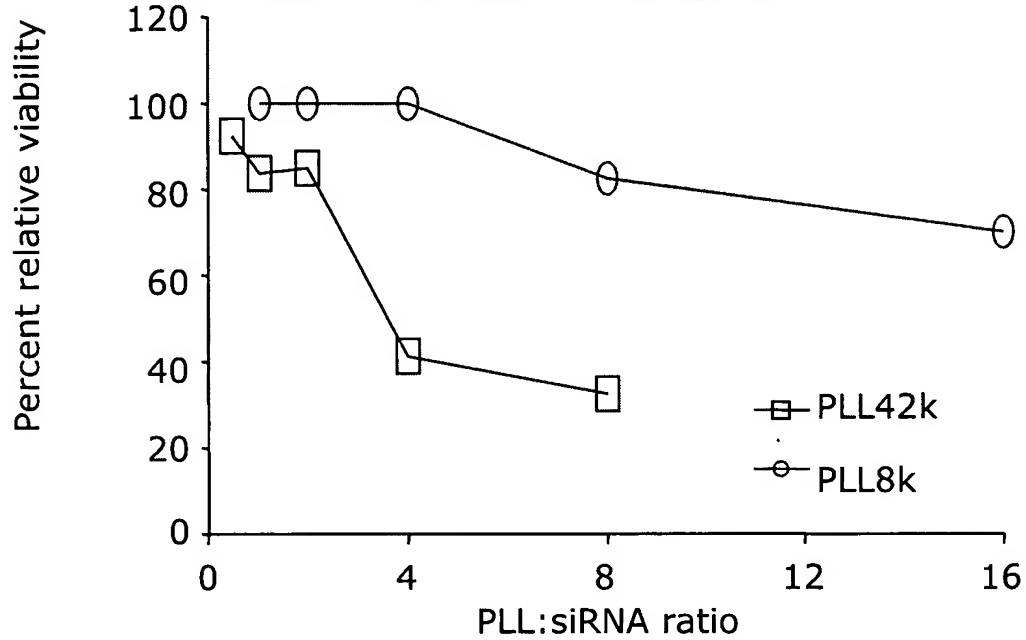


FIG. 28A

In vitro cytotoxicity of poly-L-arginine

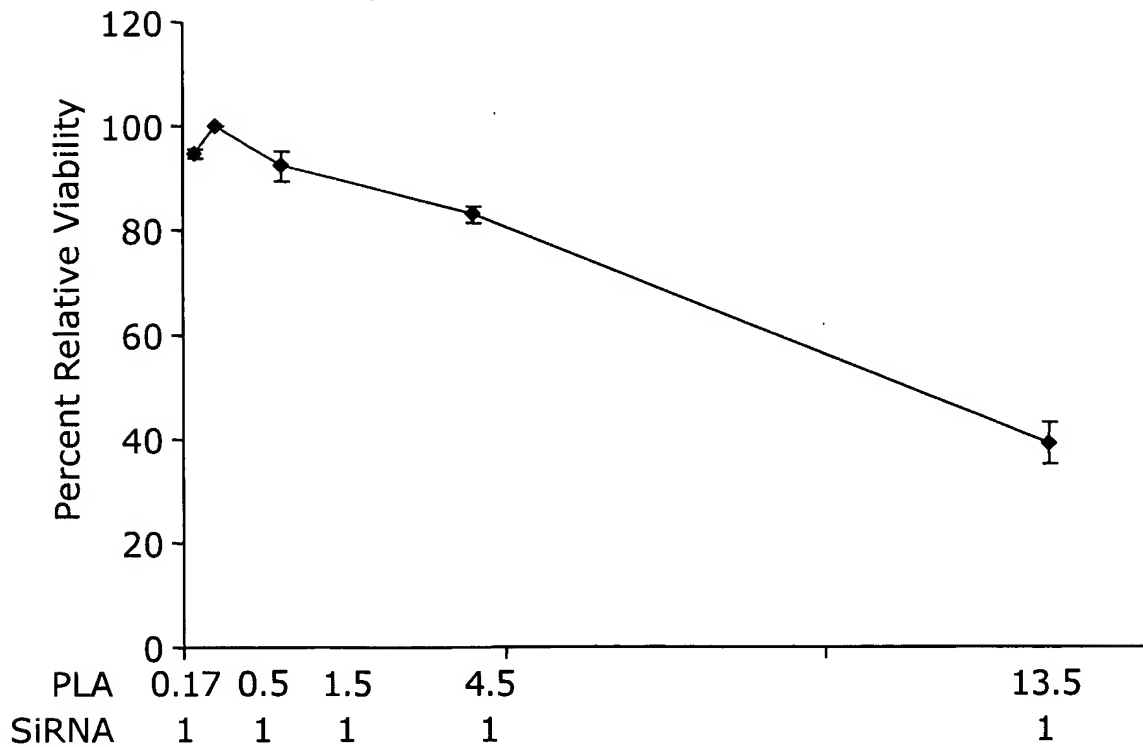
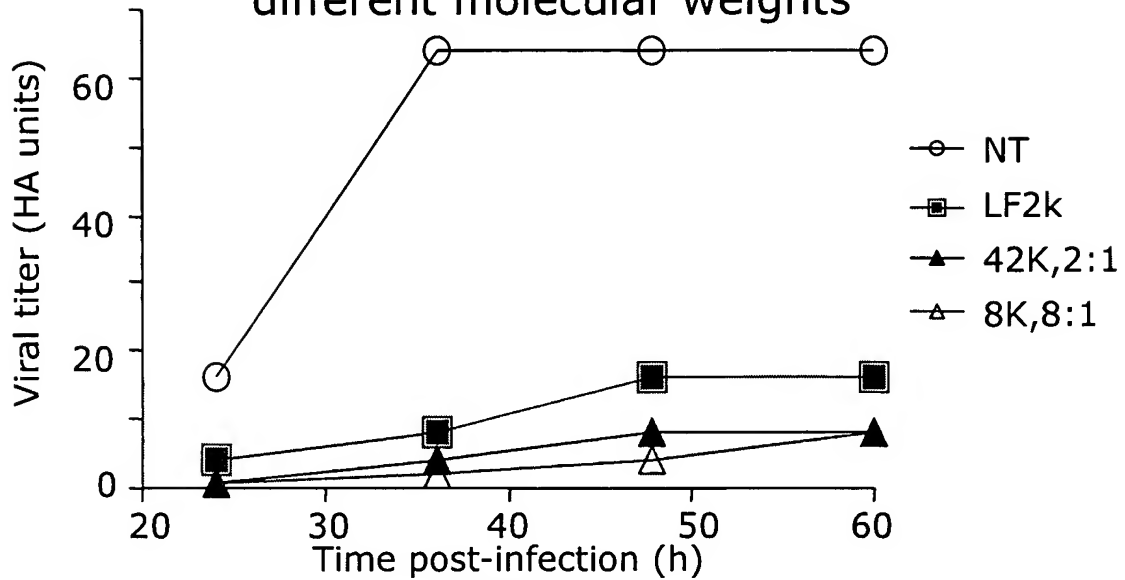


FIG. 28B

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Comparison of poly-L-lysine with different molecular weights



siRNA: 4×10^{-10} M
 42K PLL: 2.9×10^{-10} M
 8.4K PLL: 57×10^{-10} M

FIG. 29A

Poly-L-arginine helps cellular uptake of siRNA in vitro

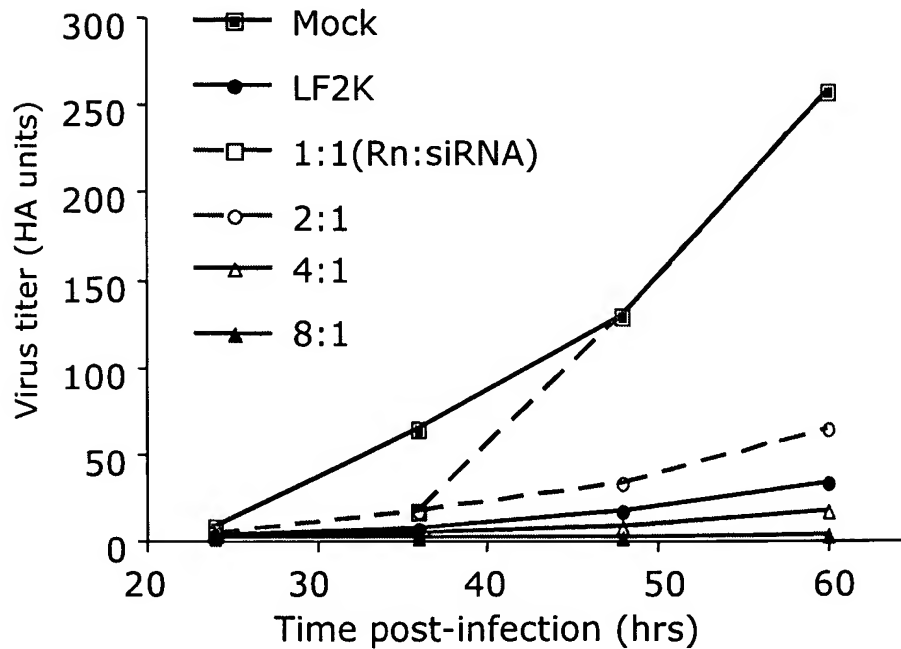


FIG. 29B